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"How to do it" Series

MODELLING & SCULPTURE IN THE MAKING

By

SARGEANT JAGGER, A.R.A.

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1933

DEDICATION

To Evelyn his wife,
in appreciation of her valuable assistance
in all his work, this volume is inscribed
by the Author

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TO THE STUDENT READER

Before embarking upon the main purpose of this book—the making of sculpture—I would like to say a few words of warning to the student-reader who, either from mere choice, natural inclination or environment, has selected the profession of sculpture as his career in life.

He has chosen the most exacting, the most arduous and the least appreciated of all the arts. Financially, the future will be a gamble, with the odds against him. Physically, he will need to be strong, because his mistress is without mercy and will demand every ounce of vitality he possesses and more. If sculpture in its biggest sense is his ambition, he must be prepared to spend a year upon a single work, and when finished hear it damned, and—what is infinitely worse—know in his own heart it is damned. Each new work upon which he embarks will hold forth the promise of successful and satisfying achievement. The end may be disappointment, bordering upon despair, for no real sculptor ever derived pleasure from his completed work. It is a will-o'-the-wisp which will elude him to the end of his days, ever beckoning but ever retreating. All this he must be prepared for, but in the full assurance that if he faithfully serves the mistress to whom he has sworn allegiance, she will in her own way repay a thousandfold. In return for the misery, fatigue and despair of which he may have more than his share, she will fill his whole life with an absorbing passion to which all other wordly joys will minister as a foil. She will shield him with a coat of mail against which the shafts of adversity spend themselves in vain.

It may be, indeed, she will shower upon her faithful servant the golden awards of life in abundance, but always heartbreak and ecstasy march together in her train. What she first demands is a deep and sincere study of, and a capacity to reproduce the beauteous forms of nature *as they are,* before launching forth into the joys of that final and culminating phase—self-expression. She likewise demands the skill of the master-craftsman which will ultimately represent for her the self-created shapes and forms of the brain. He who faithfully performs her bidding will know happiness granted to but a few. When body and soul are satiated, or have outlived the transitory pleasures and diversions of life, she—his mistress—will still be by his side, filling his imagination with pictures of loveliness. She alone will remain with him to the grave. Than this, no man can want more.

For the benefit of the student a list is given below of suppliers of tools, apparatus and materials:

Clay	*Doulton & Co. Ltd., Lambeth, S.E.1.*
Modelling tools, modelling stands and general studio appliances.	*Lechertier Barbe Ltd., 95 Jermyn Street, London, S.W.1.*
Anatomical plaster figures (human and animal).	*Plaster Cast Dept., Victoria & Albert Museum, London, S.W.7.*
Figure irons.	*E. J. Margrie & Sons, 5 Arthur Street, London, S.W.3.*
Enlarging or pointing machine.	*J. Tiranti & Co., 13 Maple Street, Tottenham Court Road, London, W.1.*
Plaster of Paris, composition piping, galvanised iron wire, joiners' tools, steps, trestles, plasterers' laths, scaffold planks, timber, etc. etc.	*General Ironmongers, Art Colourmen or Builders' Merchants.*

TOOLS AND EQUIPMENT

In commencing this book our first duty is to make ourselves acquainted with the necessary tools and equipment of the studio. Not merely for actual modelling, but also for the making of armatures, backgrounds for reliefs, and so on.

With regard to the actual modelling, the student must realise at the outset that the most useful tools he possesses are his own two hands.

The few other tools necessary for the making of a colossal statue or big relief in clay are illustrated on the first plate. Each has its particular usefulness: the knife point for drawing on the clay and the blade for carving the contours of the model. The big wire-ended tool for scraping over the larger surfaces of the model, and removing any surplus clay. It also helps to unite and pull together the surface generally. This tool is best made out of flat, broad iron wire, and provided with teeth (see Plate I) at wide intervals. The teeth are best cut with a circular rat file. This semi-circular cut in the edge of the tool is preferable to a V-cut or any other section, in that it does not clog with clay during use and thereby lose its effectiveness.

The smaller wire-ended tools are generally used to remove clay from hollows which are inaccessible to the fingers, but really there are endless uses for them all, including the ball-headed wooden tool, for which there is no special purpose, but which will be found of general use in applying clay to areas out of reach of or too small for the fingers to be employed.

It is worth noting that several of the wire tools have parallel sides. This is in order to avoid undercutting the design when removing the clay from your background in relief work, and these are made of fine steel or German silver wire.

With regard to the shape of the tools, the simpler the better, flat at one end, round at the other. Anything else is superfluous. As I have already stated, these tools are all that are necessary for the greatest venture in clay, but in a fully equipped working studio, the tools required for other and various purposes are almost without number, from a soldering iron to a block and tackle. Almost every tool ever invented is needed sometime or other in the studio and workshops of the professional sculptor. However, this extensive equipment gradually accumulates over a period of time, and as required. For the aid of the student, I propose to give a list of tools and studio appliances which

will only represent a useful nucleus, but which will carry him through most of his practical requirements in making armatures, etc., and for general purposes in the production of a large model in clay.

Tools and appliances necessary for the making of a piece of modelled sculpture up to approximately 12 feet in height, and in addition to tools already mentioned:

CLAW HAMMER.
HAND-SAW
WOOD CHISELS (three)
BRUSHES (several sizes)
SHEARS
PLIERS
GALVANISED WIRE 18-in gauge
NAILS (clump-headed zinc and wire, assorted sizes)
COMPOSITION (not lead) PIPING ⅝ in. outside measurement
SPIRIT LEVEL
PLUMB LINE
WORK BENCH
VICE FOR BENCH
JAR OF SHELLAC (white polish)
JAR OF BRUNSWICK BLACK
PROPORTIONAL CALLIPERS
PORTABLE MIRROR (not less than 4 ft. in height)

EASEL
TURNTABLE 3 ft. 6 in. height, 1 ft. 6 in. by 1 ft. 6 in. top
TURNTABLE 2 ft. height, including banker on wheels, 5 ft. by 5 ft. top
THRONE FOR MODEL on wheels, 3 ft. by 3 ft. by 1 ft. 6 in.
LAY FIGURE
HUMAN SKELETON
ANATOMICAL PLASTER FIGURE
BOXES FOR STANDING UPON, etc. (four to six)
2 TRESTLES 12 ft. in height
1 STEP LADDER 8 ft. in height
1 STEP LADDER 5 ft. in height
4 SCAFFOLD BOARDS 10 ft. length
CHICKEN WIRE (close mesh)
FIGURE IRON (small)
FIGURE IRON (large)
POINTING MACHINE

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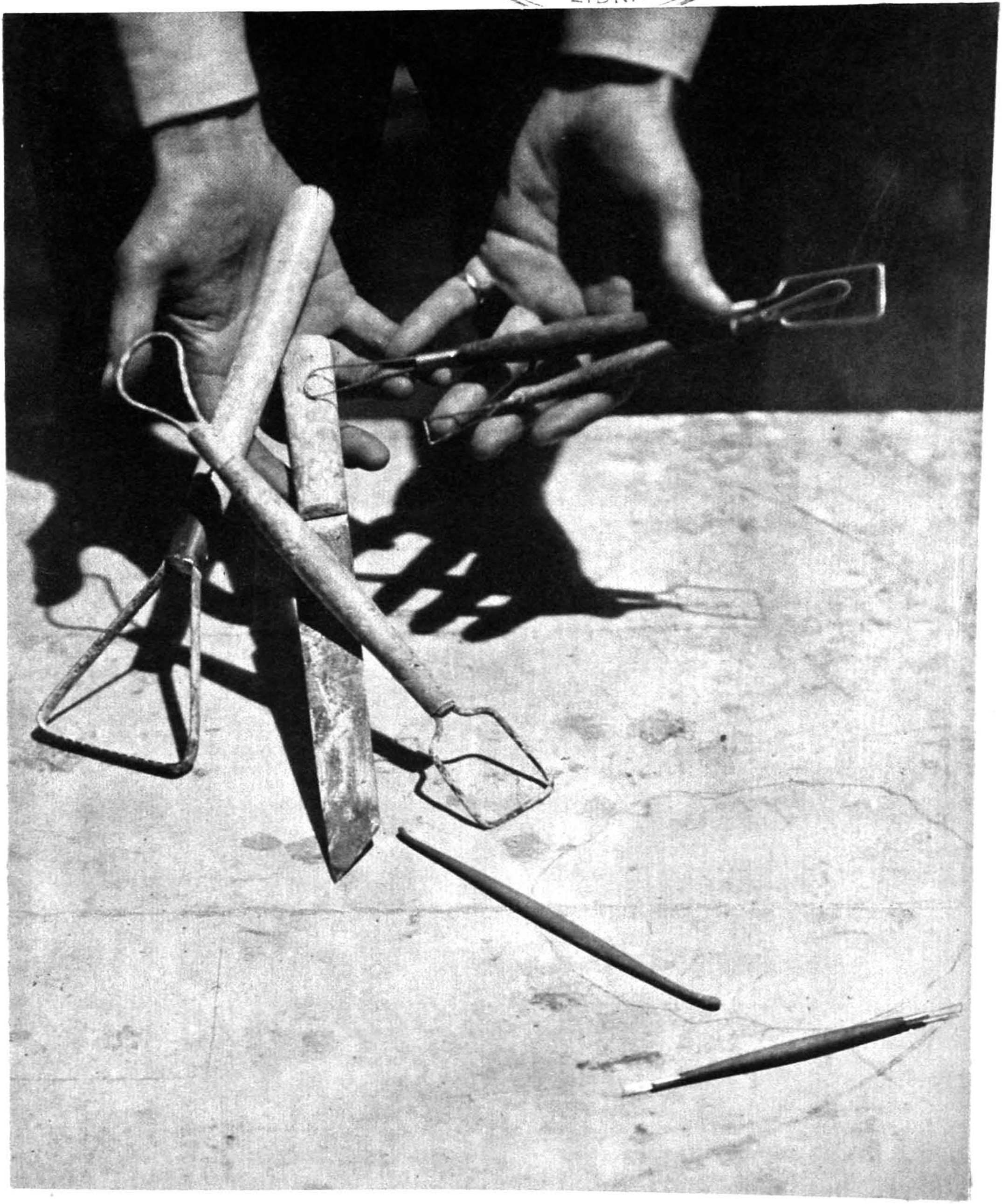

PLATE I. Modelling Tools

Our next duty is to know something of clay.

The clay used by the sculptor in the execution of his craft can be procured from any of the potteries in the country. It lasts indefinitely, and improves with usage. It is bought in a plastic state, but when quite new possesses a slightly gritty quality which soon disappears with handling.

It is essential to have some kind of receptacle in which to preserve the clay and keep it moist as long as possible. The most convenient kind of "clay bin" for indoor use is actually a concrete pit two feet in depth under the floor of the studio, with trap door, in some accessible corner. Another form is a stout wooden box lined with lead and supplied with a lid. Even the ordinary galvanised iron dust bin is often used for small quantities of clay, but after a time the rust finds its way into the clay and is a trifle unpleasant. Galvanised iron tanks of odd sizes can be requisitioned for the same purpose. Two bins are essential —one for clay in good condition for working, and one for clay which has been in use and requires attention in order to bring it to a good working consistency again.

Plate II illustrates the method of "knocking up" clay which has become too hard to use and is required for a new model.

With the spade form a large mound and sprinkle the mound with water by means of a syringe, then chop into slices with a length of flat iron 3 ft. 6 in. by 2½ by ¼ in. approximately. With the spade remake the clay into a mound, sprinkle again with water and again chop into slices. Repeat this many times until the clay is sufficiently soft to allow the thumb to be pressed into it with ease and removed without actually adhering. When eventually an even consistency has been obtained, cut off convenient lumps and form into rolls similar to those shown in the plate. The clay is again ready for use and the rolls should be placed in the bin and covered with a wet piece of flannelette. The cloth, of course, must be damped every other day or so to preserve the clay in good condition.

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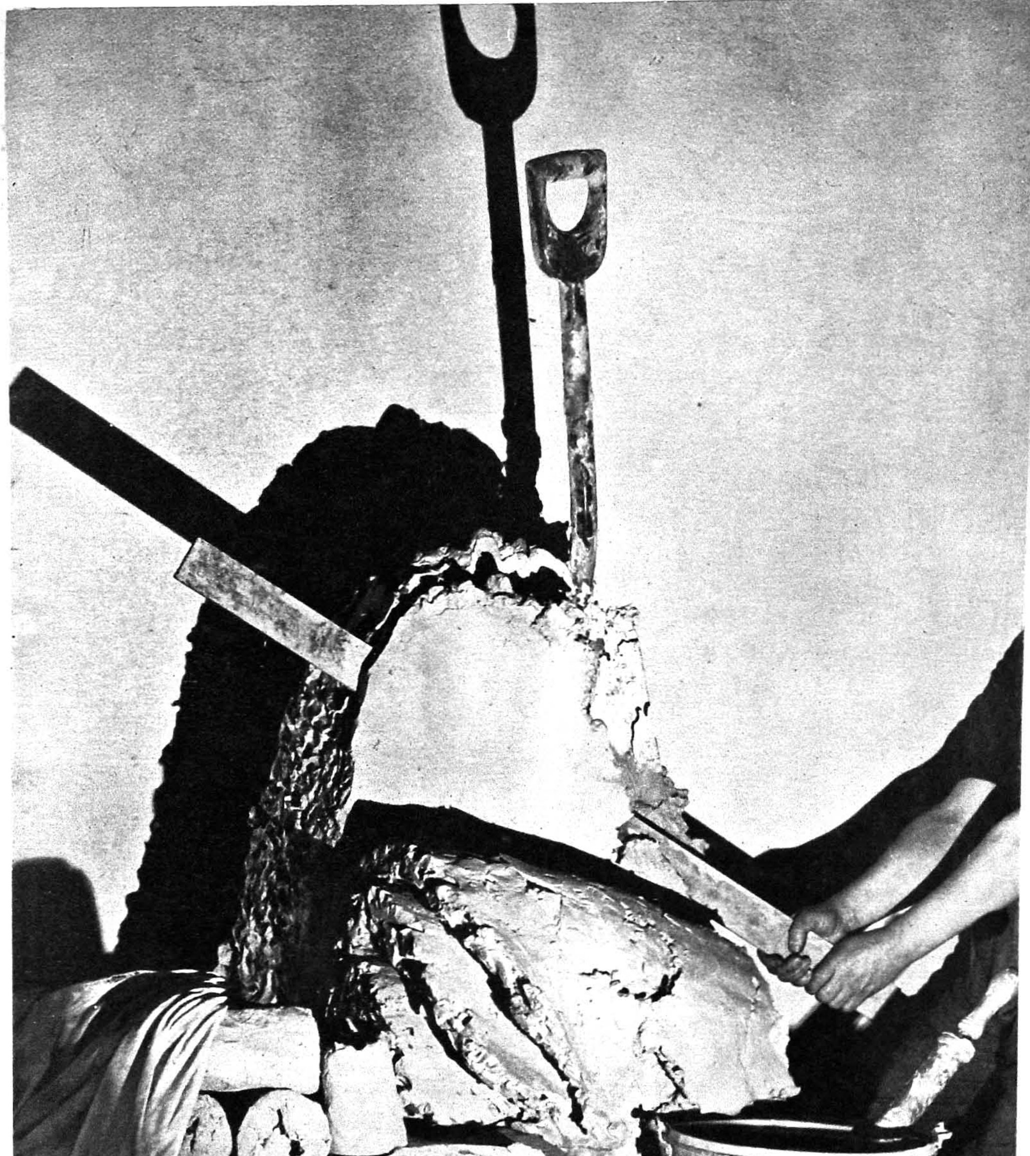

PLATE II. Preparation of Clay

I have already mentioned that in consistency clay should be sufficiently soft to permit of easy manipulation but not so soft that it adheres to the fingers in handling. Almost every sculptor has his own method of applying clay, but broadly speaking, the various methods may be classified into two groups:

(1) Rolling a pellet of clay between finger and thumb before applying and then smearing with the ball of the finger or thumb in the manner of a painter using his brush.

(2) The breaking of irregular shaped pieces of clay from a larger lump, and applying without rolling, or smearing, thus definitely building up the form. See Plate III.

Of course, the only thing that matters is the ultimate result, but I personally prefer and practise the latter. I find this method has a psychological effect in that it conveys to the mind of the modeller an impression of the solidarity of form. It will compel him to search for the definite boundaries of shapes and forms, no matter how much he intends ultimately to merge or lose these boundaries. It will help him, in other words, to learn the "anatomy of form."

It is outside the scope of this book to give instruction in the anatomy of the human figure, but as the representation of the human form is the problem with which we are chiefly concerned it is obvious that a sound knowledge of the bone framework and the muscular system is absolutely essential. It is not necessary to approach this part of our studies after the manner of a doctor, but the student of sculpture must at the outset familiarise himself with the shape and proportion, assembling and articulation of the bones of the human body, together with a knowledge of the functions of the muscles both deep-seated and superficial and their influence on the surface form when in action or repose. Professor Thompson's book on anatomy will give him all this information. A thorough study of this book, together with the anatomical plaster figure and combined with demonstrations on the human model, will soon equip him with the necessary knowledge. In the earlier stages of figure design of any kind a thorough knowledge of anatomy enables the student to work quickly and easily in producing one conception after another without the restraint entailed by reference to the living model, which should never be necessary until the composition is finally determined upon.

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PLATE III. Application of Clay

I propose now to take the student through the various stages involved in the making of a full-sized model in clay of a piece of sculpture in the round of heroic dimensions.

We first of all select our subject. Having decided upon this, the next step is to determine the most appropriate way of representing it. The usual method is to sit patiently and wait for inspiration, but as I have found to my cost that this can result in an infinite waste of time, I invariably adopt the following practice of inducing one's creative faculties to function. Pin a large sheet of detail paper on the studio wall, or on a drawing board, and write at the top the subject chosen. In Plate IV the subject selected is " Christ the King." Then write beneath any words or phrases the subject implies. Many of them will be useless, but others will at once suggest to the mind possible compositions. Then take a piece of stick charcoal and sketch very simply and in as few lines as possible the various conceptions which the notes have suggested. You will very soon have indicated a dozen or more possible ways of representing your original subject, but, what is equally important, you will by now have got something upon which to make a start.

The next step is to commence your first model. This first model is always referred to as the sketch model, and it is *primarily* for the purpose of designing the *silhouette* from every possible angle. It should contain no framework or armature whatever, this would inevitablv restrict freedom in effecting easy alterations quickly.

Place a lump of clay, say 18 in. in height, on a modelling stand, and provide yourself with not less than the three tools shown in the plate. Of these tools the knife will be found the most useful at this stage, and with it carve out the general contours of whichever charcoal sketch you think gives most promise of further development. Confine yourself to broad flat planes and entirely ignore all detail. You will presently have fashioned out of your solid block of clay a rough shape in the round, but consisting entirely of big, flat surfaces. On to these surfaces you can now draw with the point of your knife the subordinate masses and less important details of your design, which by now should be framing themselves in your mind.

It is from this stage and onward that the wire tools illustrated in the accompanying plate will be employed for cutting away the surplus clay. In this first sketch model one need not give undue regard to accuracy

Date

PLATE IV. Commencement of Sketch Model

in proportions, etc. The object of this model is to set down in solid form the principal and subordinate masses in fairly true relation to each other and to the design as a whole, and for the purpose of designing the *silhouette* in general from *every* point of view. There is no need to take into account the scale of this model in its relation to the ultimate finished work. The student, however, should by now have a more or less clear idea of the smaller details of his conception and their position in the scheme, and he can, if he wishes, indicate these details in his model, as shown in Plate V, which also demonstrates the stage to which a sketch model should be taken.

I cannot sufficiently emphasise the importance of this first work in clay. The first and most important quality of any great successful sculpture is its striking or arresting silhouette. The silhouette is the first impression the spectator is conscious of long before he is aware of the other qualities—beauty of surface, form, charm of detail, etc. If the spectator does not experience any powerful emotion on his first glimpse of the finished full-size sculpture, it is because the silhouette is unsatisfactory, and no other qualities, however beautiful, will compensate for its deficiency. I would exhort the student at this stage to spare neither himself nor his design, but to test every variation of shape that occurs to him, and not abandon his sketch model until he has obtained the most striking and impressive interpretation his subject will afford. Having achieved this, he can turn his attention with an easy mind to the next stage, which is the making of the *working model.*

For the purpose of introducing variety in the photographic illustrations, I propose to use a different subject with which to demonstrate the next stage. It will therefore be understood that the sketch model for our new subject, i.e., a 9 ft. statue of a soldier, has been already completed. In the working model we are about to commence, we now for the first time take into serious consideration the dimensions of the full-sized statue. As the total height of our full-sized statue has been determined at 9 ft., we will decide upon 3 ft. as being a convenient height to make our working model.

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PLATE V. The Finished Sketch Model

THE WORKING MODEL

The most satisfactory size for working models generally ranges between 2 ft. in height and 3 ft. 6 in. Models of this size are quite big enough on which to thrash out every problem likely to be found in the full-sized statue, and yet small enough to permit of experiments with drapery and other details being carried out rapidly and with ease. It will readily be understood how much less effort and time is required on a 3 ft. model than on one three times its size in effecting alterations of design and testing out various arrangements of drapery, etc. And it is because of this infinite saving of time and labour that this $\frac{1}{3}$ scale working model is made. Indeed, on this model we shall finally determine the proportions of the figure, the arrangement and details of drapery, and the distribution and placing of the enriched parts of the scheme. In fact this model must be a perfectly finished miniature of the full-sized statue, in which every problem of composition and treatment has been solved.

Before we commence, we must first provide ourselves with the following equipment for the making of the armature, or framework to support the clay, illustrated on the right of Plate VI. The smaller armature on the left is for a life-size bust.

12 feet of composition (not lead) piping $\frac{5}{8}$ in. thick (outside measurement).

1 coil galvanised iron wire, No. 18 gauge.

4 or 5 butterflies (two short bits of wood tied together diagonally with wire—see plate).

2 figure irons as shown in plate, made of $\frac{3}{4}$ in. iron, in height not less than 20 in. to the first right angle bend; then horizontal for 6 in. to the second angle, and vertical for another 6 in.

It is well to note at this stage that, as the position of the horizontal portion of the figure iron will correspond to the vertical centre of our figure, which is to be 36 in. in total height, we should thus have a 2 in. margin beneath the feet of our figure. And this will presently be utilised for a clay base into which the legs of our armature will be firmly embedded.

Strong base board (18 in. square)
Plumb line
Wooden mallet
Pair of shears
Pair of pliers
Jar of Knotting or Brunswick Black
Proportional callipers
Turntable (3 ft. 6 in. height)
Model's throne
Nude model

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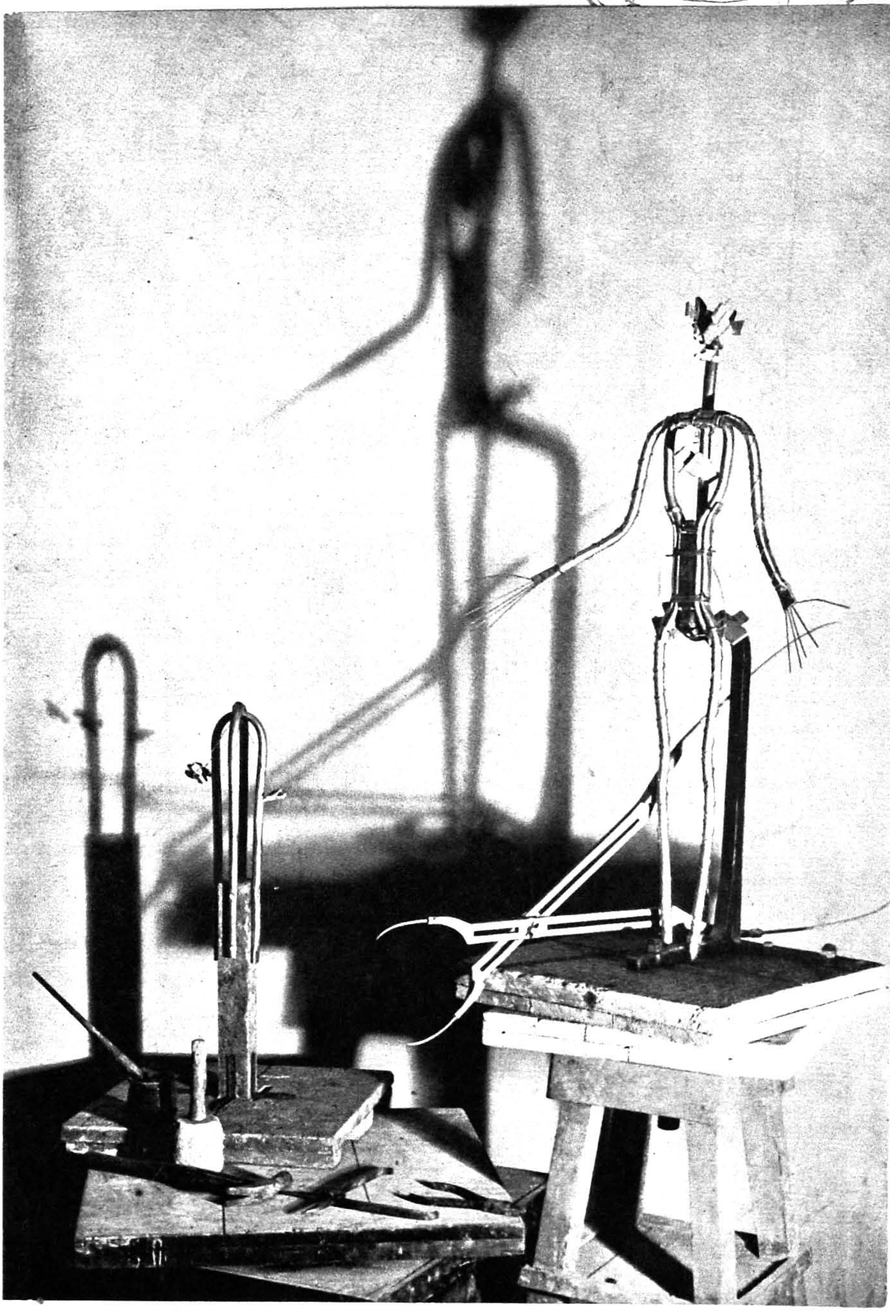

PLATE VI. Armature for Working Model

Securely bolt the figure iron to base board in such a position that the short 6 in. vertical portion of iron is immediately over the centre of the board. Now pose the nude model on the throne according to your previously made sketch model for this statue. The next thing is to set your proportional callipers so that any measurement taken with one end of the callipers gives a reduced measurement at the other end in the same ratio as the height of our working model is to the height of the living model. This is done quite simply by loosening the thumb screw in the centre of the callipers, and sliding it along the slots until you get a span of 18 in. at one end (half the height of our working model) and a span at the other end exactly half the height of the living model *when posed.*

Bear in mind that the horizontal piece of the figure iron should be a little above the centre of your model when binding on the piping, in order that it will be well buried in the clay on the front of the figure. We can now with the aid of our proportional callipers estimate the approximate length and cut off the necessary pieces of piping as they are required. The photograph shows exactly where to bind the individual pieces of piping to the iron, with the exception of the piece corresponding to the backbone, and which also forms the neck and the head. This piece is bent backwards at right angles at its lower extremity, and is here bound to the horizontal portion of the figure iron and again to the piece which forms the torso at a point corresponding to the pit of the throat. The sections of piping are bound to the iron in the following order :

1. Torso.
2. Backbone.
3. Arms (in either one length or separately).
4. Legs (in two lengths).

The few points to remember in making this armature are as follows :

1. Be careful not to " kink " the piping when bending to required shape.
2. At all points where two or more pieces of piping are bound together or to the iron, the piping should be slightly flattened with the round mallet on the work bench.
3. The short lengths of wire used for binding the piping together should be first formed into the shape of a letter V, with a loop in the angle. The two legs of the V are then bound round the piping,

and the loose ends twisted together with the pliers. The loop also is then twisted taut, thereby giving an extra point at which each wire binding can be tightened.

The piping for the arms should be cut off at the wrist, and the five lengths of twisted wire corresponding to the fingers and thumbs inserted into the bore, and made secure by firmly compressing the piping round them with the pliers.

The small " butterflies " required are two for the head, two for the buttocks, and one in the torso or chest. Bind the arms and legs with wire as illustrated in order to prevent the clay from slipping on the smooth surface of the piping, and then paint the figure iron with knotting in order to prevent rust penetrating to the surface of your clay model.

Finally, with the aid of your proportional callipers and plumb line, correct the pose of your armature by reference to your sketch model.

The armature is now completed, and you can prepare to apply the clay in the following manner.

Clothe the piping with a covering of clay to an approximate depth of half an inch, making the torso, of course, quite solid, and embed the legs in a foundation of clay to a depth of 2 in., previously allowed for when selecting the iron. You now have a covering of clay on the piping in which to insert the match sticks or wooden pegs which are going to be our guide in building our figure (Plate VII). The pegs generally mark the extremities of the bones which can be seen or easily felt near the surface of the nude model, and their respective positions on our armature are found by the combined use of plumb line and proportional callipers, and in the following manner.

With the aid of the plumb line draw a vertical line down the centre of the working model back and front. On this centre line, and by the aid of your proportional callipers, measuring from the base, insert a peg marking the centre of the figure on the front. From this point you will find and peg the top of the sternum. From the top of the sternum you will measure to the back of the neck and find the position of the seventh cervical vertibræ. These last are the two most important points to establish, and great care must be taken to ensure that the armature is buried centrally between them. I will now give a list of the necessary points we must establish with pegs, in their correct order, and how to obtain them, before proceeding with the actual modelling.

These points can almost all be seen in the illustrated plate.

Central point on base.

Base to vertical centre of figure.

Centre figure to top of sternum.

Top of sternum to seventh cervical.

Right acromion process (located by measuring from top of sternum and checked by measurement from seventh cervical).

Left acromion process (located by measuring from top of sternum and checked by measurement from seventh cervical).

Anterior iliac processes (from centre of figure, and check by distance between and also from acromion processes).

Posterior iliac processes (from anterior iliac processes, and check from acromion processes and distance between).

Top of head from top of sternum.

Arms (right and left) head of ulna from right and left acromion processes.

Arms (right and left) base of ulna from right and left head of ulna.

Legs—top of patella (right and left) from right and left anterior iliac processes.

Legs—inner malleolus (right and left) from right and left patella. Check from base.

Legs—outer malleolus (right and left) from inner malleolus. Check from base.

These salient points having now been established exactly, and checked by as many cross-measurements as possible, we now begin to build up our figure by applying the clay, as previously described, and as illustrated in the accompanying plate. You will now appreciate the value of your earlier study of anatomy, which will at once subconsciously influence you in your construction of the form. It will help you to build your figure in a scientifically structural manner, and will enable you to analyse forms in the nude model which would otherwise appear formless and without definite shape. There is only one danger in this scientific knowledge of anatomy, and that is a tendency to give to the subordinate and trifling forms in which the human figure abounds, and which can be entirely ignored at this stage, undue prominence at the expense of the big structural forms. However, a knowledge of this danger will enable the student to avoid this most common of all failings in modelling the nude.

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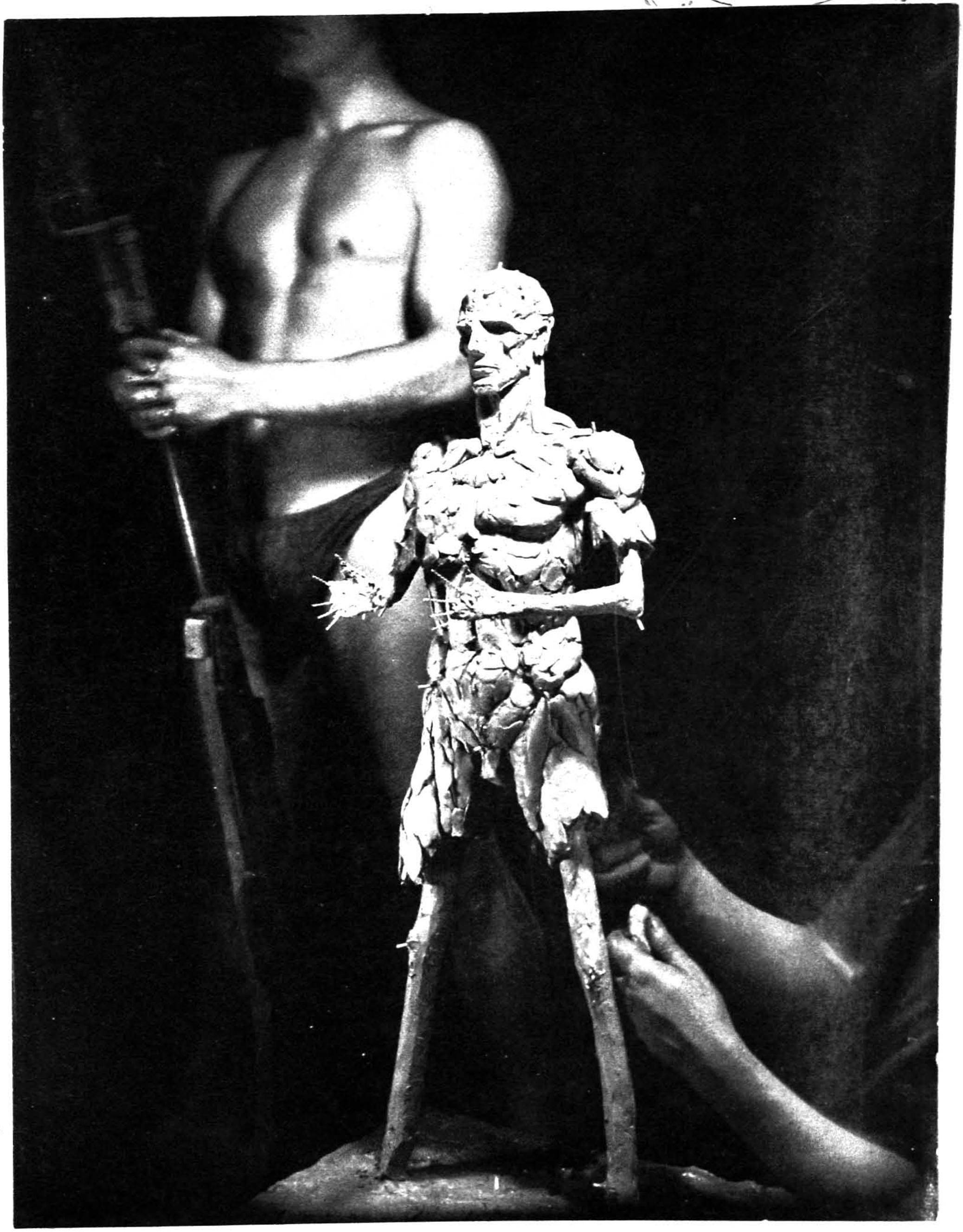

Plate VII. Commencement of Nude. Fixing of Points

It is obviously impossible by means of mere written directions or recipes to ensure the student producing a study of the nude which could rank as a masterpiece of sculpture. I can do no more than tell him the usual method and the rest must depend upon his own observation and perseverance.

Instead of as in relief, where we are concerned with only one silhouette, our figure in the round possesses silhouettes without end, and as soon as our points are established, we commence to model these many profiles. Commencing with the side profile, model back and front from top to base. Then turn your model to the front and do likewise, and so on to the back and three-quarter views. Turn the models constantly until the profiles have been accurately drawn in clay. Then carefully examine the many sections of the nude model by looking along the limbs, or from above or below the torso. A careful study of the sections will enable the student to connect up and complete his many profiles. Then comes the study of the direction and movement of the surface forms, which in turn will lead to the definite separation of forms from one another and finally the simplification of form, bearing in mind that it is better to simplify too much than too little. In the case of the working model, which we are engaged upon, it is essential to make the study proportionally a little bigger in girth than the living model, in order to prevent the illusion when finished of a skeleton or emaciated figure in drapery. (This applies in principle to the nude studies for all draped sculpture.) Also I would remind the student, although we have used the living model as a basis of reference and to obtain general accuracy in proportions, it is not, in this instance, our sole aim to produce merely a photographic representation of the living model. (He should, nevertheless, have attained the craftsmanship to do so by independent studies.)

We are really making a piece of sculpture, and in doing so we are fully justified in indulging in reasonable liberties with the forms of nature according to the requirements of our subject. Exaggeration or modification of the forms of nature are the undisputed prerogative of the creative artist, and it is only the abuse of this legitimate license which results in revolting deformity and malformation.

We now approach the next stage, which concerns the designing and arrangement of the drapery. In order to obtain the utmost freedom in experimenting with various groupings of folds, suspended masses, etc., we must ensure against the danger of destroying or cutting into the

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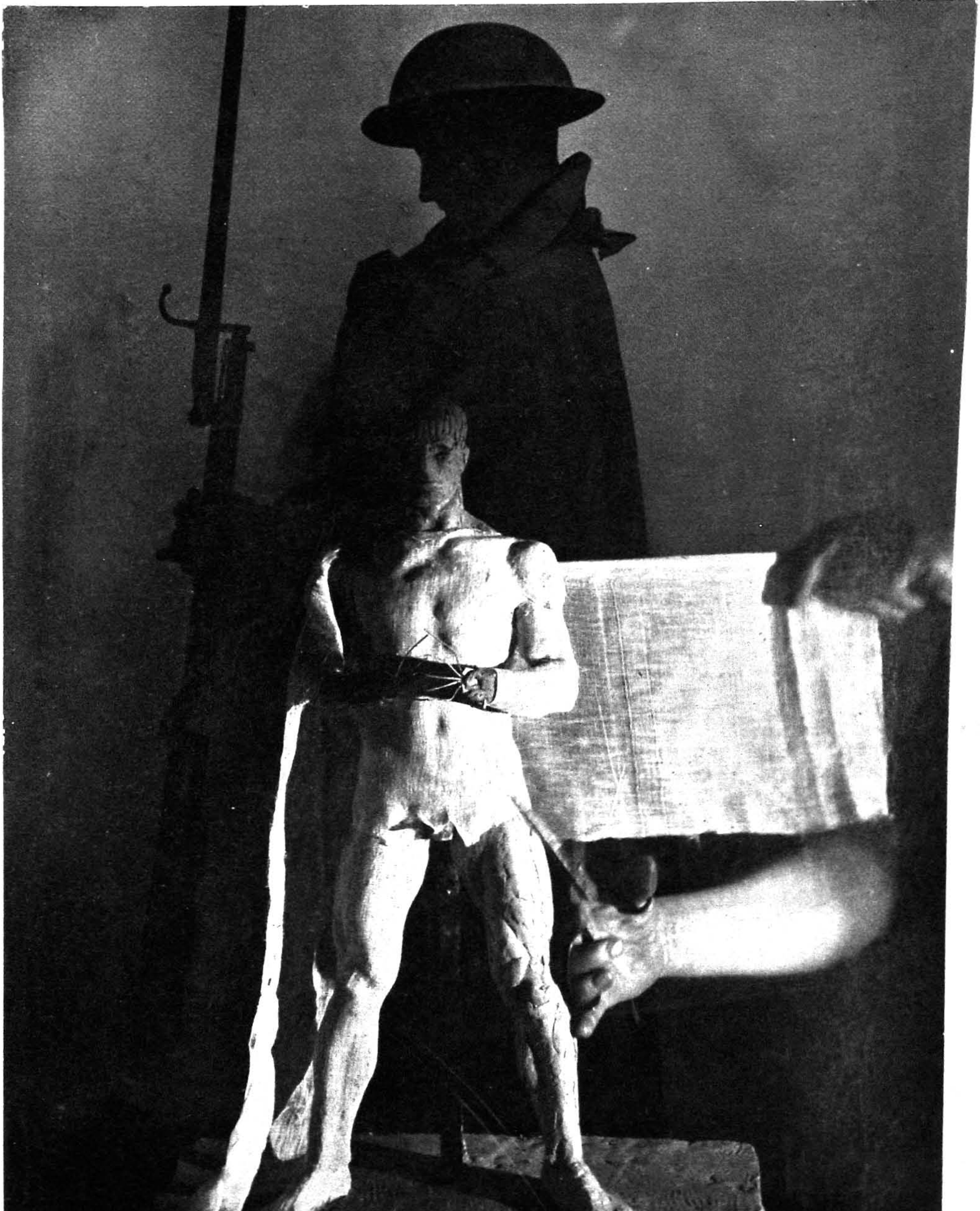

PLATE VIII. Nude Study being clothed in Muslin

nude form beneath. This is done by the very simple but effective method of covering our nude study with muslin (Plate VIII). Once this is done, one can apply and remove with ease arrangement after arrangement, and experiment with impunity without the slightest danger of deforming the nude inside.

This completed, we now dispense with the living model, and bring forth our lay figure dressed in the garb we intend to employ. Here again I would remind the student that the realistic drapery of the lay figure must only be used as reference and as a basis on which to form his own scheme of folds, etc. From the lay figure he will get the natural areas of suspension, the groupings of folds, the radiation and converging of folds, suggestions as to where he can introduce the big plain masses and surfaces necessary to obtain the required contrasts of colour, etc. It will give him all this, but that is not sufficient. Drapery in art must be designed. Unfortunately, space will not permit of a detailed history of the many and varied methods of treating drapery in sculpture, but a few general principles may be of assistance.

The very earliest examples of the treatment of drapery by the primitive sculptors was marked by a singular simplicity entirely devoid of detail such as folds, etc. This simplicity was partly the outcome of a lack of executive skill, and partly due to the employment of imperfect tools. The arduous undertaking of carving a statue out of hard stone or granite with soft tools resulted in the necessity for obtaining the desired result with a minimum of labour. Hence the charming simplicity of primitive sculpture—charming because it was the genuine outcome of prevailing circumstances. At a later date we see in Assyrian and Egyptian sculpture how the artist, now a superbly skilled craftsman, has appreciated the artistic value of and retained the simplicity of his primitive predecessors, and added to it an exquisite refinement in drawing. The drapery of this period in sculpture is still practically devoid of folds, except of a most conventional kind. Its decorative value as a fine simple shape in the design is still retained, but its character as a woven material and not a thing of substance is conveyed by delicately incised pattern: tassels, fringes, etc. This is the period when drapery devoid of folds and treated as a simple shape was at its best. At a later date still, however, when the sculptor has equipped himself with perfectly tempered tools, and the effort of removing surplus stone or marble has become a thing of no account, we find him revelling in the decorative use of the fold in his draped sculpture. In the work of the

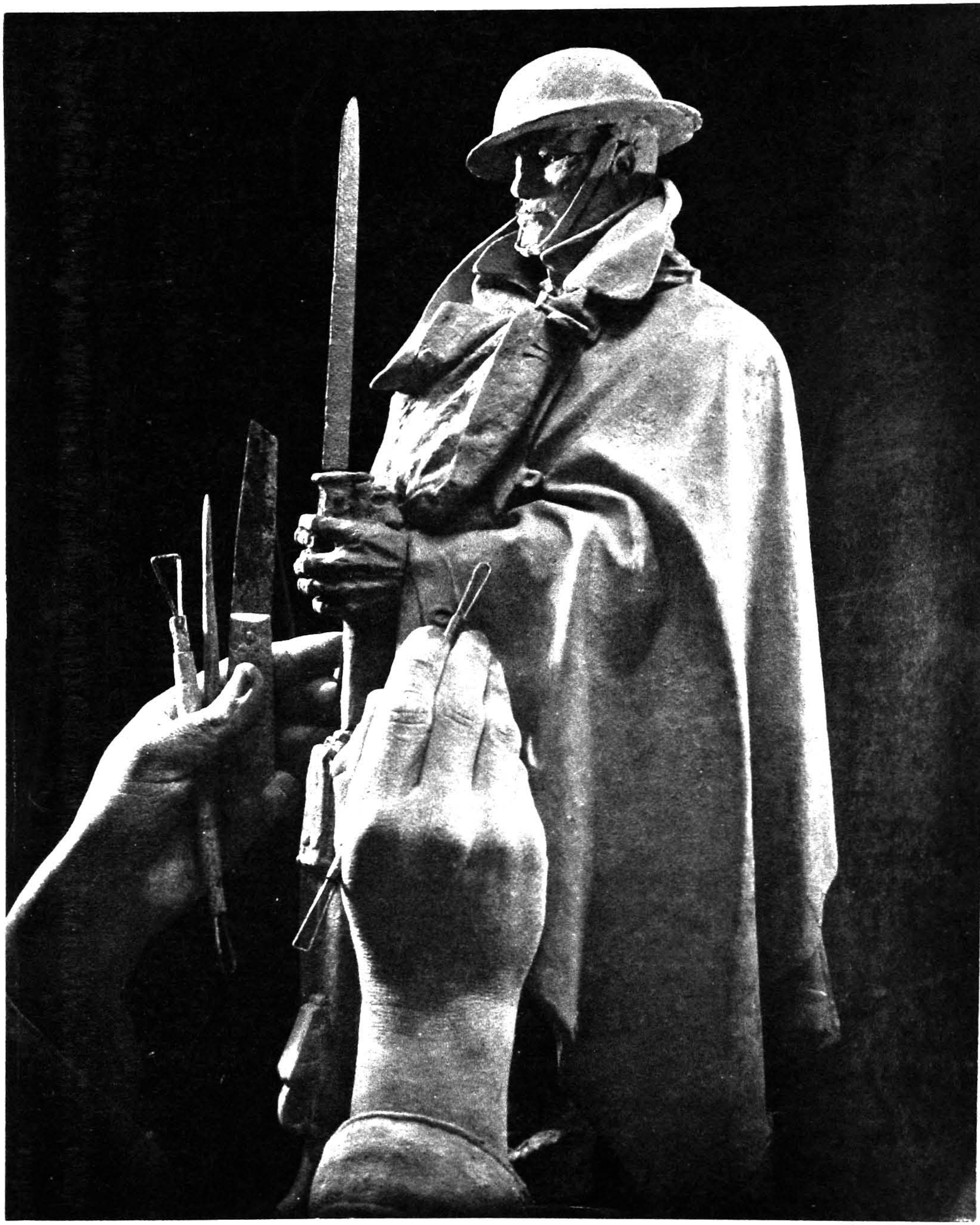

Plate IX. Working Model Finished

Greek, Gothic and Renaissance periods and down to our own time the harmonious arrangement of folds has been a conspicuous feature of draped sculpture in all materials, and it is with this type of drapery that we are concerned in our present model.

A few words of guidance to the student in the arrangement of drapery on a figure in which folds are employed may be of use. In almost every draped figure there are (1) definite areas of suspension from which the drapery hangs vertically; (2) groupings formed by the bending of a limb, etc., from which the folds radiate from a common point (Plate IX). The synchronisation of these two groups of folds, broadly speaking, represents the structural anatomy of drapery. The method of obtaining an harmonious arrangement of folds for our model is as follows: Carefully study and observe the folds on the draped lay figure, and determine which are absolutely essential, and which are of secondary importance. It will be found usually that the great majority of folds can be dispensed with entirely by a careful readjustment of the principal ones. The simple lesson to bear in mind the whole time is that the fewer folds employed the more effective will be the result.

Having now decided upon the absolute essentials, we proceed to roll between the hands a number of thin ropes of clay. Short lengths of these ropes are placed lightly on the model in the shape and direction of the folds we consider necessary, having in mind again that the bigger and broader the areas quite devoid of detail the more effective will be the few folds employed. Indeed, our entire problem now consists of obtaining an harmonious distribution of the minimum number of folds. This result can only be obtained by infinite rearrangement and elimination, and using the actual drapery on the lay figure not as a thing to copy but merely as a basis upon which to build our own arrangement. It is essential to concentrate our "colour," or groups of folds, in as small and defined areas as possible, carefully distributing and separating them by plain spaces. This is where the student's knowledge of design will assert itself, and whether his ultimate treatment of the folds is of a realistic or conventional nature the same principles will apply. When at last our arrangement of drapery is determined upon, we proceed to fill in the hollows between the folds according to their required depth, emphasising the colour at one point or subduing it at another, concentrating the greatest weight of colour and interest in one area only and subordinating everything else to this principal spot of interest. Constantly observe your model from the viewpoint of the spectator

PLATE X. Working Model, showing Contours and Sections drawn in

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when the full-sized statue is in situ, taking care that what is essential should be unobstructed by projecting limbs, drapery or accessories of any sort. It must be remembered that the object of this working model is to minimise the labour of making experiments and alterations on the final full-sized model, therefore we must leave no problem unsolved but carry it to a stage of completeness in every respect. (See Plate IX.)

When our model is satisfactory we proceed to have it cast in plaster, as the necessary procedure to which it will now be subjected would be difficult to accomplish whilst in clay. No doubt, to many readers it will be difficult to appreciate the necessity for these two preliminary models before beginning the full-sized work. I can only assure them that after a long experience of the making of heroic sculpture, I am satisfied that the enormous saving of time and labour by this method is beyond question and, what is still more important, the feeling of complete confidence experienced by the sculptor when he commences the final work in the knowledge that all his real problems and difficulties have already been tackled and overcome.

When once in plaster, we paint the cast with white shellac (known as white polish), this gives a surface upon which we can establish points with a pencil preparatory to entering upon the final stage in the modelling of the great statue. The beginning of this final stage is the marking on the cast in pencil of a system of points for the purpose of building up the full-sized model by means of the pointing machine. There is no difficulty in this. It merely consists of drawing lines down the contours and round the sections at convenient distances and as far as possible following the shape of the form. Wherever these lines cross the intersection is known as a point. (See Plate X.)

PLATE XI. Pointing Machine in Position

Our next task is the building of the big armature, and again, for the purpose of variety in the diagrams, I propose to use another working model prepared in exactly the same way and similar in type to the one we have just completed.

The making of our full-sized model should entail no great difficulties over and above a general facility in the use of joiners' tools and the power to handle clay on a large scale. These things, although an essential part of a sculptor's work, cannot be gleaned from a book. They come with practice and experience, aided by common sense. I therefore shall deal briefly with the making of this final model, but, aided by a study of the plates, the capable student should gain a clear idea of the procedure.

The pointing machine is now brought into use. It is so simple that it requires no technical knowledge in its manipulation. Briefly, it consists of a long bar provided with two pointers, which move in sympathy with each other and in any required direction, and, by adjustment, the long pointer registers distances and projections, etc., three times larger than the small pointer, that is, in the same ratio that our small model bears to our final full-sized model.

The machine requires two people to operate it. The one directs the movements of the short pointer as it travels over the surface of the small model from one point to another. The second person observes the movement of the long pointer, which is synchronised with the small one. (See Plate XI, showing machine in its relation to two models.)

The making of the big armature is just rough practical joinery. It is erected on a strong turntable, and is generally built around a strong central iron support exactly similar in shape to the smaller one used in the working model, but proportionately larger and stronger. The base board to which the "feet" of the iron are bolted must be separated from the top of the turntable by two pieces of timber 6 in. by 6 in., the same length as the base board, and placed parallel to and near the outer edge of the turntable top. The bolts which secure the iron figure support are inserted from the cavity and thrust upward through holes in the board, being finally secured with nuts when they emerge through the bolt holes in the feet of the iron. This will enable the iron to be removed from the mould later on during the process of casting and is a very important provision to make. To the upper vertical sides of the

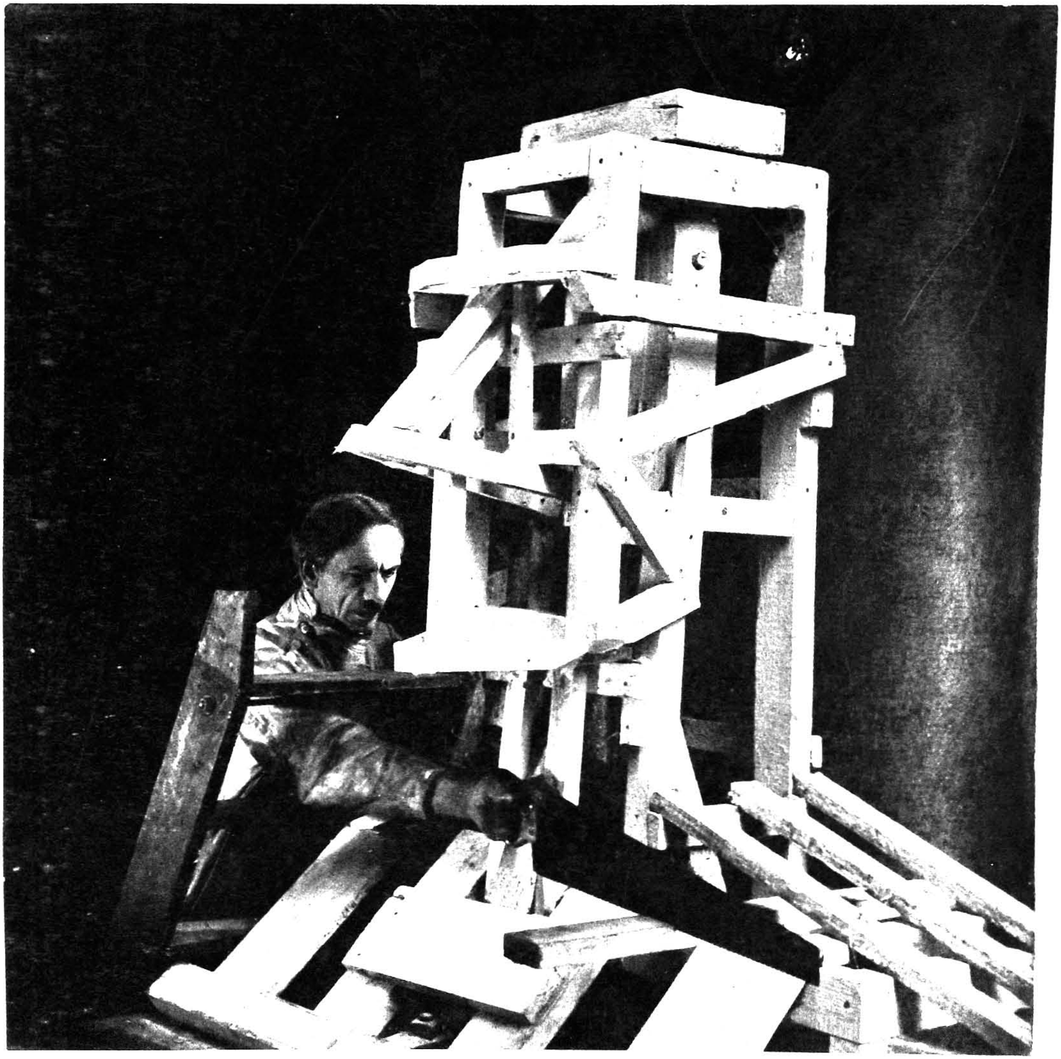

PLATE XII. Internal Framework for Full-sized Armature

iron are bolted two stout 4 in by 4 in. timbers, corresponding in position and length to the torso. These two timbers form the core of the armature and to them are nailed the necessary cross-pieces and uprights which provide the skeleton framework (see Plate XII, on to which are finally nailed the plasterers' lathes, as illustrated in Plate XIII). The shape and relative position of all this wooden armature is obtained by means of the machine. The long pointer, of course, gives the actual surface position, so that the sculptor builds his woodwork not nearer than two inches from the actual pointer. This means the finished armature will finally be covered with a layer of clay approximately two inches in thickness. Guided by the machine, the making of this big armature only requires a certain amount of care in determining the position and direction of the main timbers employed in the skeleton framework. The most useful sizes of timber for use in a big armature are 3 in. by 2 in., 2 in. by 2 in., 2 in. by 1 in. and 1 in. by 1 in., and a few bundles of plasterers' lathes. Composition piping and close-meshed chicken wire are used for shapes which cannot easily be fashioned in wood. The entire armature should be finally painted with knotting.

The armature now completed, we cover it with clay to the approximate depth of 1 in. Into this first covering of clay are stuck the wooden pegs, the position of which is registered by the long pointer of the machine, working in sympathy with the short pointer, which is being moved from one intersection to another on the surface of the working model by the assistant. When at last all the points have been established, we build up the clay to the tip of the pegs, and the result will be an exact enlargement of our small working model. (See Plate XIV.) The most convenient pegs for the purpose are safety matches. The most tedious part of our task is the extraction of these pegs with a pair of sharp-nosed pliers, which should be done as soon as possible.

All that remains is to work over the surface according to the sculptor's fancy. Modifications and minor alterations are inevitable (see Plate XV), but if our preliminary work has been done thoroughly and conscientiously the making of the full-sized work should be a straightforward and delightful task. The "finish" of the surface depends upon the permanent material in which our statue will be ultimately reproduced. If it is to be bronze or other metal, a smooth or polished surface is not at all necessary. If it is to be a carved material of any kind, a "solid" surface is better for the convenience of carving.

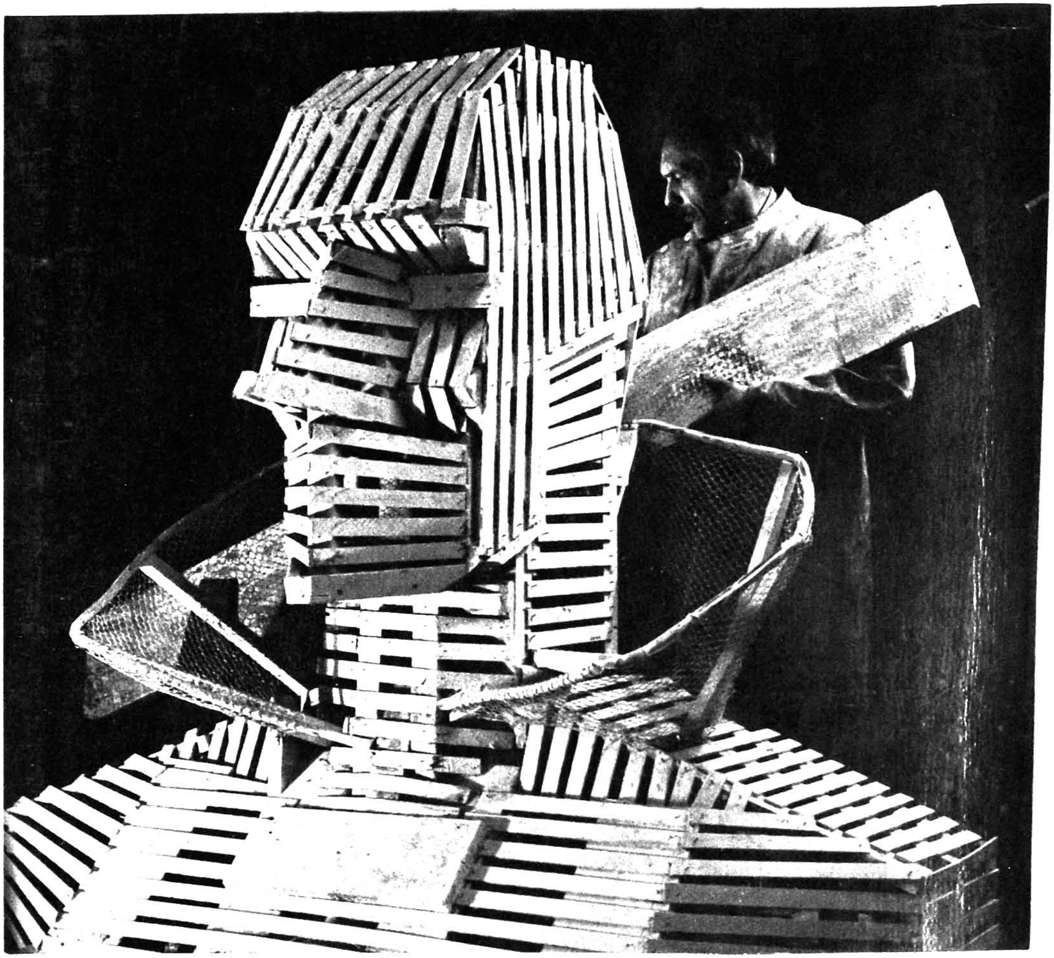

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Plate XIII. Full-sized Armature, finished

Plate XIV. Full-sized Head, pointed

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Plate XV. Full-sized Head, finished

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RELIEF

We now turn our attention to the making of a relief. It has been noted that two preliminary models are necessary in the case of a large piece of sculpture in the round. In relief, however, we are able to dispense with the first sketch model. In a relief we have only one silhouette to consider, and this can be designed on paper, and therefore the two models necessary will consist of a working model to scale, done from the drawing, and our finished full-sized model.

We will assume that the size of our relief is already determined, so that our first problem is to make the two backboards. (See Plate XVI.) The timber used for the actual backboard in either case is 9 in. by 1 in. (unplaned) and strengthened with batons of the same wood. Surrounding each backboard is a frame of wood, which is intended to enclose the clay out of which we shall carve our relief. This frame must be deep enough to contain the greatest projection of our relief and still allow for an inch depth of clay on the background. Having gone thus far, we will now proceed with the smaller backboard first. It is necessary to provide some sort of "key" to assist the clay to adhere to its wooden background. All that is necessary is a number of clump-headed zinc nails driven into the backboard with their heads projecting half an inch or so (see top left-hand corner of small background on plate). Then paint the surface of the backboard and inside of frame with knotting, in order to prevent the wood absorbing moisture from the clay. The board is then covered with clay firmly beaten home with the knuckles, and to an amount exceeding the quantity required. The surplus clay is then sliced off with a short length of wire provided with handles. (See Plate.) The result is a level slab of clay ready for use.

In the case of the background for the full-sized relief, however, we must provide for the support of a proportionately larger and a thicker slab of clay, and this necessitates a more elaborate system of "keys." The best method is to nail to the backboard plasterers' lathes crosswise, forming 6 in. squares, but note that the uppermost layer is the horizontal series. Were the order reversed, there would be a danger of the clay slipping downward of its own weight. Additional support for the clay will be obtained by nailing a few butterflies to the backboard wherever there is going to be a considerable projection of relief. (See Plate.) The position of these butterflies, however, can only be ascertained when the design has been made.

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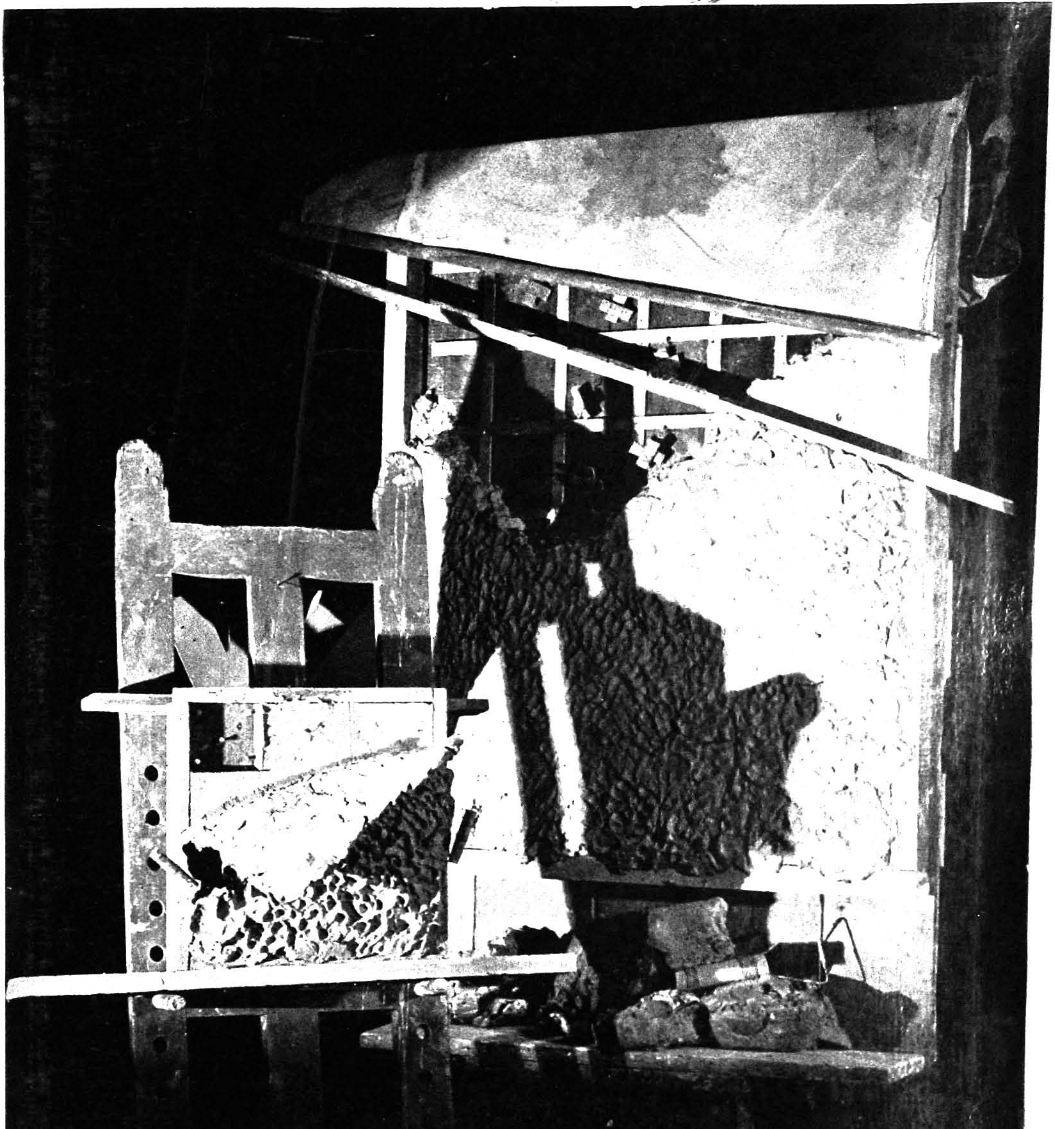

PLATE XVI. Backgrounds for Relief

Once more apply knotting to the entire woodwork which will come into contact with the clay, and then proceed to apply the clay. As in the previous instance, build the clay forward of the actual surface required, and scrape away the surplus with a straight-edged piece of wood, using the upright sides of the frame as runners for the straight-edge. (See Plate XVI.)

With regard to our design, this can be made on paper, as we are only concerned with one silhouette in a relief, but—as in the round—the silhouette is of first importance, and should be emphasised on the drawing in order that we may easily appreciate the relative value of the shape made by the pattern against the plain area of the background.

I think at this stage I might mention the main principles involved in relief sculpture.

I have already stressed the point that the actual pattern or design must be dominated by its own outline or silhouette. This is obtained in the following manner. Where several planes are superimposed one upon another, the lowest of these planes (which, of course, forms the outline of the design) must be higher in projection from the background than the projection of any other planes in the design from those immediately beneath them. Thus we have a strongly defined outline, which controls and dominates the interest and details contained within it. A type of relief in which figures and forms appear gradually out of the background, or, inversely, fade away into the background, is a style to avoid.

As most relief is for the purpose of decorating a flat and solid wall surface, the use of perspective or distance in the design is obviously wrong, as it suggests a hole through the wall. It also automatically breaks the continuity of the plane of the wall or surface which is being decorated. Again, our relief should retain the character of the surface we are decorating. As this is invariably flat, then our relief must be "flat" in character. The word "flat" is rather misleading, however, because if we carefully examine the best relief of this type—the Assyrian bas-reliefs—we shall find that no matter how slight the projection, they are always faintly convex in section, thereby giving volume to an apparently flat treatment.

Relief provides the opportunity to revel in movement or action (the reverse of big sculpture in the round), but the movement should always be in sympathy with the direction of the surface to be decorated. It would be obviously wrong to represent horses, etc., stepping or jumping

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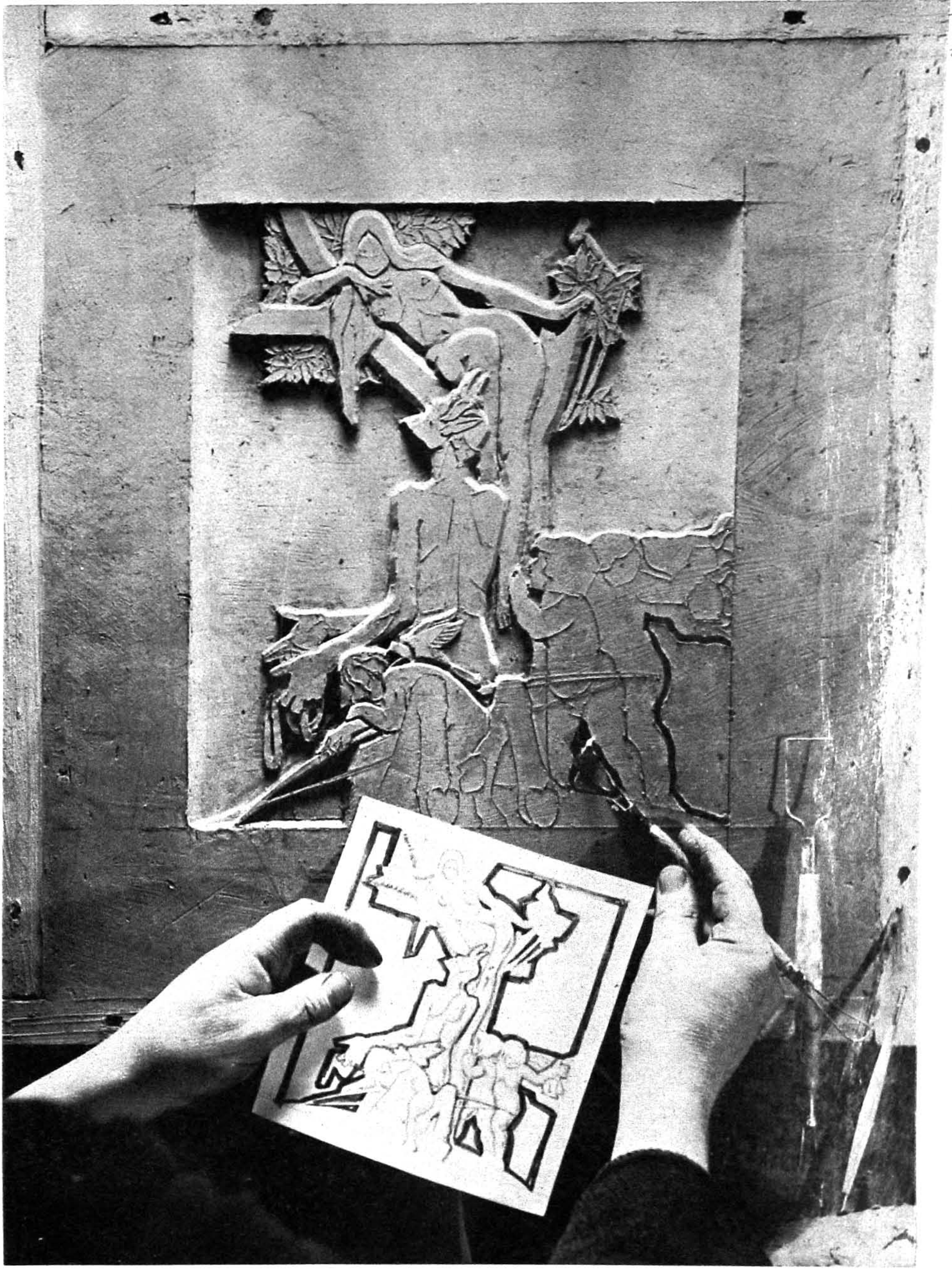

PLATE XVII. Relief in Making

out of the design. This means that when employing action we must confine ourselves as far as possible to the use of figures, etc., in profile.

Generally speaking, the fewer planes superimposed one upon another the simpler our problem. The greater area of our design which we can keep in our foremost plane the more sculpturesque the effect will be. Also it is unnecessary to employ what is known as "undercut."

We will now return to the actual making of a relief.

It is assumed that our sketch design has been made on paper, and that the representation of our subject has been arrived at by the same method employed when making the design for our sculpture in the round. Our first actual model is the working model to one-third scale for convenience, supposing the dimensions of our full-sized model to be 6 ft. by 5 ft., our scale model would be 2 ft. by 1 ft. 8 in. Draw the design on to the smaller slab of clay already prepared with a fine blade steel spatula, and then with your small round-end wire tool outline the silhouette (see bottom right-hand corner of Plate XVII). Next, with a square-end wire tool, remove the clay outside the silhouette to the total depth required. The area which represents our background having now been cleared of its surplus clay, we turn our attention to the pattern. Our foremost plane is going to be the actual surface of our slab, so that, ignoring all detail, we now proceed to remove the surplus clay from those areas of our design which are to be subordinate planes, and according to their respective projections, always remembering that the depth from our lowest plane to the background must be greater than the depth from any one plane to another. Up to this stage, all our surfaces are quite flat. We now proceed to impart to them the convex character already mentioned. All this is done with the flat-ended wire tools, by cutting a facet round the edge of each plane (see upper half of Plate XVII) and later removing the edges of the facet with the fingers and wire tools according to convenience.

Our next concern is with the details and enrichments of our pattern. These are carefully designed and drawn on the clay with the spatula after careful consideration of their disposition and respective values. These details in turn are now outlined with a corner of the square end of our smallest wire tool. Finally, the necessary "feeling" and "finish" is best done with the fingers. It will be observed that the modelling of a relief is in fact carving in clay, and this is undoubtedly the most direct and effective method.

Having completed our working model, we now, for convenience of

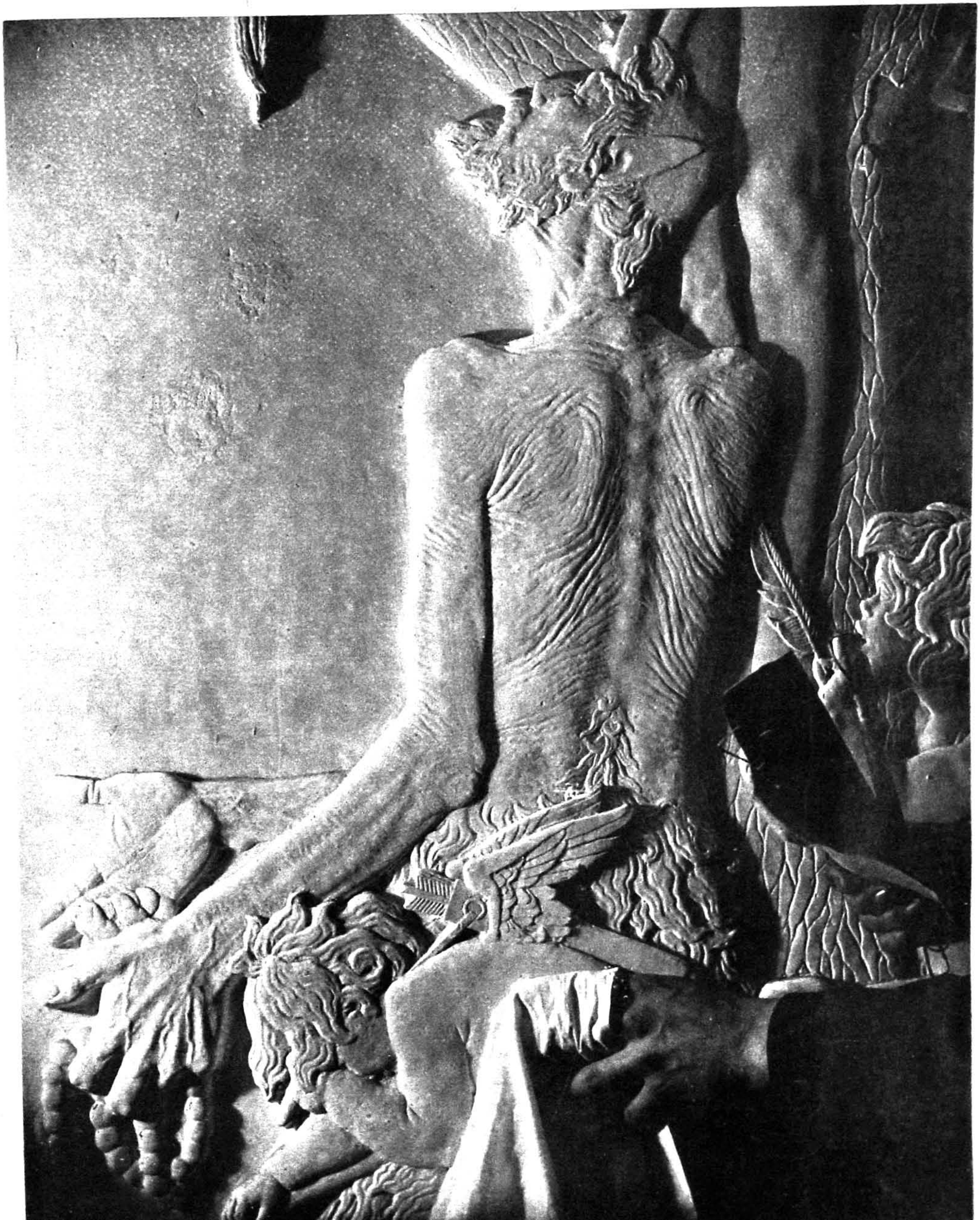

PLATE XVIII. Full-sized Detail of Relief

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PLATE XIX. Pencil Study for "No Man's Land"

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PLATE XX. Detail of Relief, " No Man's Land "

reproducing full-size, have it cast in plaster. The full-sized enlargement can be made by means of the pointing machine, as previously described, which, of course, is the better and speedier method, or by freehand. This latter method merely consists of drawing a series of squares on the surface of the smaller model, and a similar series three times the size on the full-sized slab of clay. Then draw the silhouette of the full-sized relief by freehand, and the procedure is then identical with that already described for the smaller model.

When the full-sized model is cast in plaster, it is sometimes necessary to give additional finish to surfaces and details. This should be done while the plaster is still damp, and can be effected easily by the use of modelling tools with fine teeth, followed by glass-paper, and finally with a soft cloth. (See Plate XVIII.) Any crudities in the modelling can be modified or removed in this way.

Lastly, I would like to mention the invaluable importance to the sculptor of a capacity to draw, particularly in the making of a relief. Relief is a convention. It is an interpretation on the flat of objects of three dimensions, and by first making careful studies on paper of these objects he will realise he has overcome half the difficulty of reducing an object in the round to its interpretation in relief. He then simply uses his drawings as a basis for his design, and not to copy. (See Plates XIX and XX.) It is utterly impossible to work direct on to your relief from a living model and at the same time give full consideration to the requirements of design, relief and treatment.

The reproduction of our full-sized models, either statues or reliefs, into their permanent materials, must on account of limitation of space be the subject of another book. Briefly, if the permanent material is to be in metal, the large plaster cast of the full-sized model is handed over to the founder who recasts a replica in bronze, etc., by either the sand or waste wax process. If it is to be in stone, marble, or any carved material, a good professional figure pointer and carver will do most of the laborious work quite accurately. The sculptor himself supplies only the final stage of the carving.

The treatment of a subject in sculpture is determined by the nature of its permanent material. All the carved materials are of a more or less brittle nature, therefore we must avoid, as far as possible, overhanging features in our design, projecting members, etc., which put an unfair strain on the characteristics of our medium.

I have heard it said that a piece of carved sculpture should stand the

test of being rolled down a mountain side and not sustain a fracture. This is, of course, an exaggeration, but it explains the principle.

Greater freedom is permissible in designing sculpture for reproduction in metal. Within reason, any shapes or forms of design are legitimate, but generally speaking all big sculpture, whatever the material, should possess a simple silhouette as unbroken as possible by projecting detail. This adds enormously to the monumental character of the work.

In all sculpture of massive size, vigorous movement and action should be avoided, excepting only in relief.

BRONZING OF PLASTER MODELS

Aesthetically this has nothing to do with sculpture in its proper sense, but it will nevertheless be of practical value to the student to know of a direct and effective method of bronzing his plaster models after they have served their purpose at the bronze foundry or carving yard, and he wishes to preserve them in his studio.

To obtain an imitation of brown or golden bronze, first of all ensure that the plaster model is thoroughly dry, and then apply a good coat of white polish (see lower section of bust, Plate XXI). In a few minutes this will be dry enough to apply the second coat (see middle section), and this second coat is obtained by mixing any soft, dark brown powder colour with white polish and adding a small quantity of pale bronze powder. The colour should be mixed sufficiently thick to " kill " the white colour of the plaster, and thereby leave a solid opaque foundation for our patina. The third coat is made by mixing turpentine and melted beeswax as a medium, because this will not disturb the foundation colour. It is scarcely necessary to remind the student that the beeswax must be melted *before* the turpentine is added to it, on account of the inflammable nature of the latter. When this medium is prepared, paint an even and thin coat all over the model. We have now reached the last stage, which consists of applying the pale bronze powder, and this will complete our patina. The great tendency is to apply too much, so that care must be exercised. The coat of colour previously applied, and which contained a small quantity of bronze powder, will have given a certain metallic quality to the hollows, so that our only concern now are the projections and exposed surfaces. Take a little bronze powder in the palm of the hand, and with a soft brush dipped lightly in the turpentine medium work the powder thoroughly into the bristles, so that it does not remain in clots on the brush. Pass the brush lightly over the exposed surfaces, and where necessary spread the colour with the ball of the finger or thumb, and lastly pick out the tips and sharp edges with almost undiluted bronze powder.

Done with care and intelligence, the result should be an exact imitation of bronze.

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PLATE XXI. Bronzing of Plaster Bust

TWELVE GREAT WORKS OF SCULPTURE ANALYSED

PRIMITIVE AFRICAN SCULPTURE

The Great Bieri

(Photo by courtesy of Messrs. Alex. Reid & Lefèvre, Ltd.)

As a specimen of " primitive " sculpture this is probably one of the best and most interesting examples. It is obviously the work of a natural artist, quite unskilled in drawing or craftsmanship.

Its simplicity is of the same order as that of any artistic infant of the present day when attempting to represent human features on paper. It nevertheless possesses a monumental quality which is quite beautiful. The curious sunken features, surmounted by the great dome-like cranium, framed by the thin, strap-like treatment of the hair, falling in two severe vertical columns on either side, produce a composition of remarkable charm. The delicately incised lines down the centre of the face and over the brows give a tremendous sense of " bigness " to the work. As a sculptured head it is, of course, childish in its crudeness, but as a decorative shape it is very beautiful.

PLATE XXII

KOTI-MUDA

EGYPTIAN 18th DYNASTY GRANITE GROUP

Senmut and a Princess. About 1470 B.C. (*Cairo Museum*)

From "Plastik der Ägypter" (Bruno Cassirer, Berlin)

The accompanying example fully illustrates all the great qualities associated with the carvings of ancient Egypt. The calm and peaceful serenity of the conception, the total absence of movement, the symmetric shape of the mass, which conveys such a strong feeling of architectural stability—these are the first impressions one receives at a glance.

Upon closer examination it will be perceived how only the minimum amount of material has been removed. Few of the hollows have been explored to their actual depths, the division between the right arm and the chest of Senmut, for instance, is nothing more than a slight depression, and yet it possesses in subtle degree the exact definition and perfect drawing of the living model. This particular detail of simplification has been done deliberately in order to provide a broad plain area or background affording the greatest possible relief to the profile of the princess. The refined simplification and not the obliteration of form is the key to the greatness of all Egyptian sculpture, and this example well demonstrates that rare quality. This particular work is also remarkable on account of its extraordinary beauty and simplicity of composition. The simple structure of the design is a symmetrical silhouette containing a central " column " skilfully diverted at an inclined plane to the left by the supporting lap of the goddess and then continued downward to the common base. Before the left knee was shattered this work must have been a perfect specimen of composition.

Plate XXIII

DHANAKOTI MUDALIAR
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EGYPTIAN 18th DYNASTY SCULPTURE

Portrait Head of Queen Nefertiti. Coloured Stone. (*Berlin Museum*)

This is probably one of the greatest works of portrait sculpture in existence. It is certainly the greatest the writer has ever seen. No doubt much of its charm lies in the fascinating physical beauty of the original, but over and above that, the amazing simplicity and beauty of the shape of the complete bust places it at once in the forefront of portrait sculpture.

Here is another instance of the importance of an arresting and impressive outline of the mass. The profile contour could be indicated with half a dozen simple lines, and yet the subtlety and refinement of drawing embodied in it defy description. The finely cut features, delicate to the last degree, are yet full and rich in quality of form. The ear and mouth are of especial beauty. The long, slender neck, with the beautifully drawn throat and the unusual length from the throat to the chin, all contribute to give a rare distinction to this work which it is difficult to exaggerate.

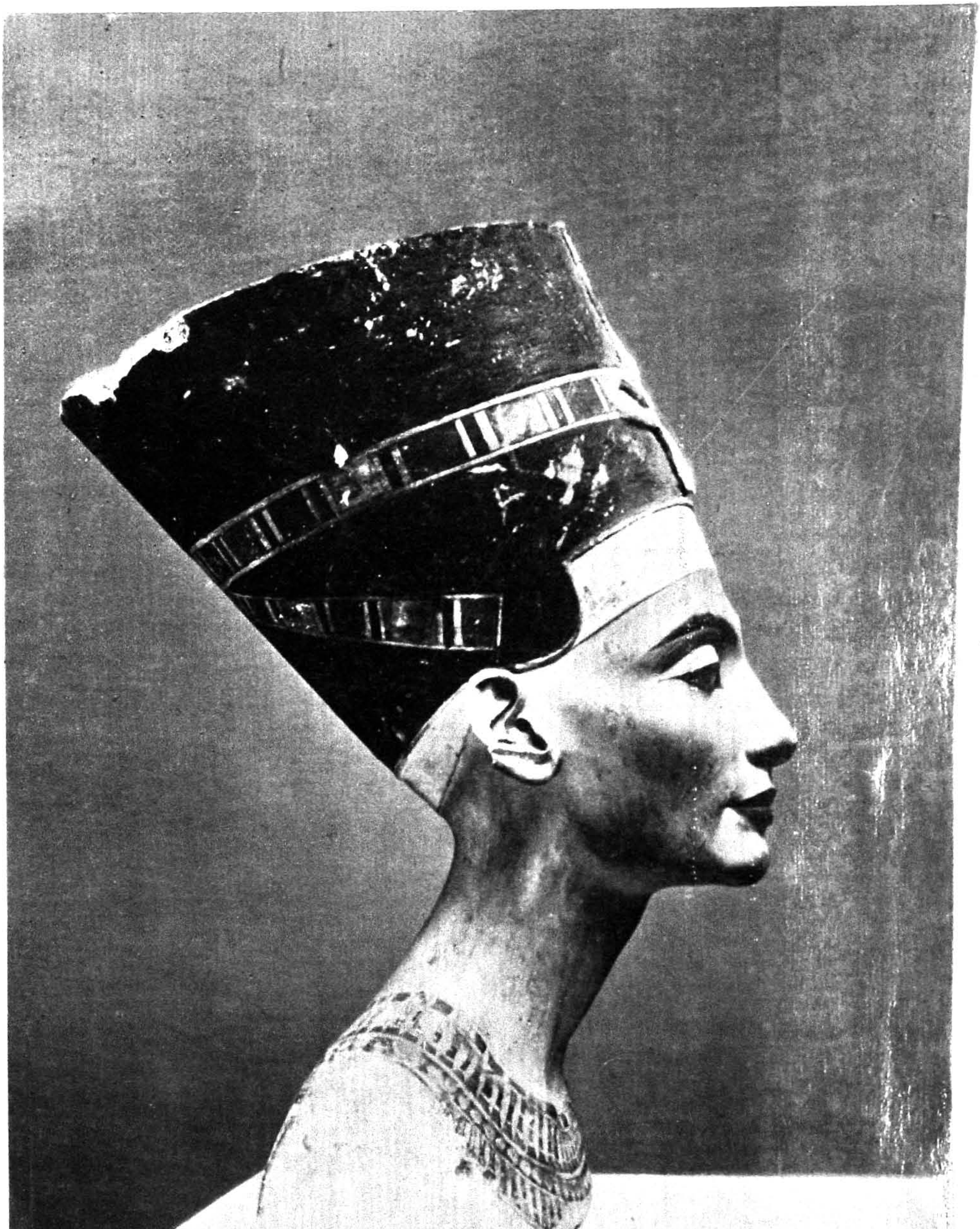

Plate XXIV

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GREEK 4th CENTURY B.C. RELIEF

Charioteer from the Mausoleum. (*British Museum*)

Although a terribly mutilated fragment, the first thing which charms the eye in gazing upon this exquisite example of Greek relief sculpture is the virility and artistic beauty of its shape. In spite of the fact that the actual carved surface is only visible on approximately half the area intended for decoration, yet the charm and value in design of the silhouette alone is strikingly demonstrated in this specimen.

The next quality which arrests the attention is the delightful and rhythmic movement of figure and drapery combined. Vivid in its realism, it yet possesses a decorative quality in arrangement which nature could never provide. The infinite variety of shape in the individual folds, and yet the complete collective harmony is a very great achievement in design.

The physical beauty and richness of form so typical of Greek sculpture is clearly evidenced in the perfect torso, the thigh, the neck and head. This example typifies sculpture in which the qualities of beauty and grace, allied to perfect craftsmanship, are given priority over the more powerful and monumental character of some earlier schools.

PLATE XXV

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ASSYRIAN BAS-RELIEF

From the Palace of Ashurbanipal (668-626 *B.C.*) *at Kuyunjik* (*Nineveh*)

(British Museum)

The accompanying plate shows a typical example of Assyrian bas-relief, and in my opinion embodies all the necessary qualities which govern the decoration of a wall surface with relief sculpture. These qualities I have referred to elsewhere in this book, but it will do no harm to draw the attention of the student to those principles of design which make this particular work an outstanding masterpiece.

The general construction of the pattern consists of two arches formed by the belly and legs of the animals, the right-hand arch being surmounted by a rough pyramid formed by the rider of the leading horse. The direction of the principal movement is from left to right, but this is counteracted and balanced by the reverse action of the charging lion on the right, which is also assisted by the direction of the spear in the hand of the huntsman. Even the position and direction of the arrows piercing the lion on the left are calculated to emphasise the forward movement of the main group.

Although strikingly realistic, the sculpturesque quality of the whole has been retained by the conventional treatment of the various planes and details of the pattern. If a straight edge were placed along the surface of the relief, it would be found that all the large areas are in the same plane. Even where one object is superimposed upon another, a common surface is retained by skilfully removing or sinking just sufficient of the underneath plane surrounding the encroaching object as was necessary to obtain the requisite definition. This is done in such a subtle manner that it is not apparent unless closely examined.

Again, the invaluable principles of repetition and radiation are strikingly demonstrated in the details of this example. The student will observe that the clearly defined areas of enrichment are so arranged in the design that they obtain their maximum value as decoration from the plain surfaces adjoining them. Also, the enrichment—though lavish in the extreme—is always kept subordinate in importance to the object or form upon which it is employed. The compact grouping of the horse's legs with the two lions has been done deliberately to avoid as far as possible disturbing the comparatively simple outline of the pattern.

DHANAKOTI MUDALI

INDIAN 13th CENTURY SCULPTURE

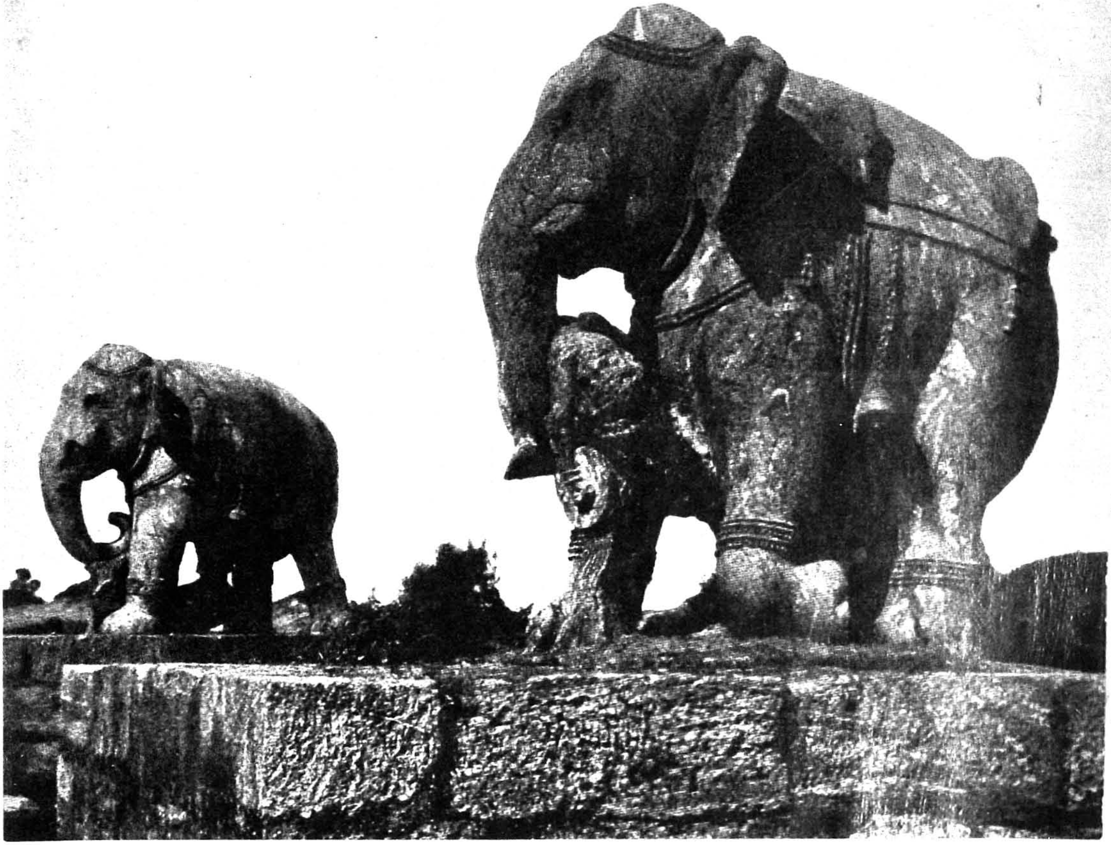
Elephants at the Temple of Khanakha

From "Indische Plastik" (Bruno Cassirer, Berlin)

It is only natural that the elephant should have inspired Indian sculptors of all periods. In real life it is probably the most monumental of all living creatures. With its huge powerful frame and slow deliberate movement, together with the massive simplicity of its shape, this magnificent beast positively cries out to the sculptor to represent it in stone.

In the case of the horse, the camel, the bullock, and in fact nearly all large quadrupeds, the comparative slenderness of the legs make these animals unsuitable for reproduction in stone without some additional support deliberately placed beneath the stomach of the beast, or an alternative method of increasing the girth of the legs out of all reasonable proportion to the carcase. Neither of these methods are ever really happy. The only possible way of justifying the interpretation in stone, marble, etc., of the great majority of four-legged beasts is by refraining from removing any of the stone whatever beneath the body of the animal. This means that the four legs are to a more or less degree carved in relief upon a solid block. This method of solving the problem, however, is not always convenient. In the case of the elephant there is not this necessity. The rather short sturdy legs with their great girth appear fully capable of supporting the enormous body even when the surplus material has been cut away.

In the accompanying plate the skilful simplification of the form is particularly noticeable, and additional bigness is obtained by the extremely delicate treatment of the harness and leg ornamentations. It will be noticed how sparingly these decorations are employed. There are just sufficient of them to afford the necessary contrast to the big monumental form of the main mass.



DHANAKOTI MUDALIAR

Plate XXVII

VERROCCHIO

Putto. Palazzo Vecchio, Florence

This example by Verrocchio is full of charm and attractiveness. Fanciful in conception, good in design and execution, it is an admirable specimen of that class of outdoor sculpture which finds its natural setting in a garden. It is suggestive at once of trees and flowers, babbling brooks and fountains—in other words it is a perfect garden ornament.

This is the type of sculpture which, delightful in its own way, is unsuitable as an adornment for any serious architectural scheme, or to be made in heroic proportions. It is essentially an ornament, and has little in common with the requirements of big sculpture. It has nothing architectural or stable in its design and is too playful in conception and too full of movement to justify its enlargement above life size. It does, however, demonstrate the liberties the sculptor may legitimately employ in designing for execution in metal. To treat the wings, the dolphin's tail and the right leg of the cherubim with such freedom and detachment from the main mass in stone or marble, etc., would be a crime. It is perfectly legitimate in metal, however, when justified by the requirements of the design.

PLATE XXVIII

DHANAKOTI MUDALIAR

A. RODIN

The Burghers of Calais

This is an example in stark realism, and a typical specimen of the great master's forcefulness and power. In re-creating the six citizens, Rodin taught us that realism of the most vivid type, controlled and dominated by the skill of a great designer, is a combination which can stir human emotions to the profoundest depths.

This great composition is almost unique, in that it consists of six entirely detached figures, so cunningly designed and grouped that the final result is most complete and satisfying. The student can only realise the greatness of Rodin's achievement after he has himself attempted to create a composition consisting of a number of quite separate members. The complete group comprises a simple oblong, or, to be exact, a right-angled parallelogram, and it is by adopting this simple shape as a basis for his involved conception that the sculptor has been enabled to retain, in spite of the fascinating detail, a big simplicity in the assembled group. The dramatic portrayal of a great tragedy is here reproduced with such terrific power and consummate artistic genius that the spectator wonders if ever the world will see its like again.

It is my own conviction that a subject must always dictate its own treatment or method of expression. It is wrong to suppose that the same formula can always be applied. For instance, any emotional subject, teeming with drama and human tragedy, can only adequately be expressed by grim realism controlled and directed by the artist, whereas an abstract subject such as Day or Night can only be suitably expressed in abstract shapes and symbols, and in such an instance realism would be inappropriate.

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Plate XXIX

A. BOURDELLE

La Vierge d'Alsace

This work is undoubtedly an outstanding masterpiece of modern art. Skilfully designed for the material (stone) in which it is carved, it has no overhanging or projecting features. Nothing unduly tests or strains the medium out of which it has been shaped. The vertical character of its silhouette is not weakened by the gentle sway to the left, because of the buttress-like folds at the back, which restore the feeling of stability, together with the vertical pose of the infant, placed cunningly just to the right of the centre line of the group. The horizontal position of the arms of the infant give a strong architectural quality to the design.

The drapery throughout follows the direction of the limbs or forms which it barely conceals, thereby retaining the simplicity of the pose, but at the same time introducing great richness in carefully selected areas. Although the torso of the infant is quite detached from the main figure in the group, the outstretched arms are both supported at their extremities by the head and left hand of the female figure respectively, which is quite sound construction, and a perfectly legitimate treatment even for stone.

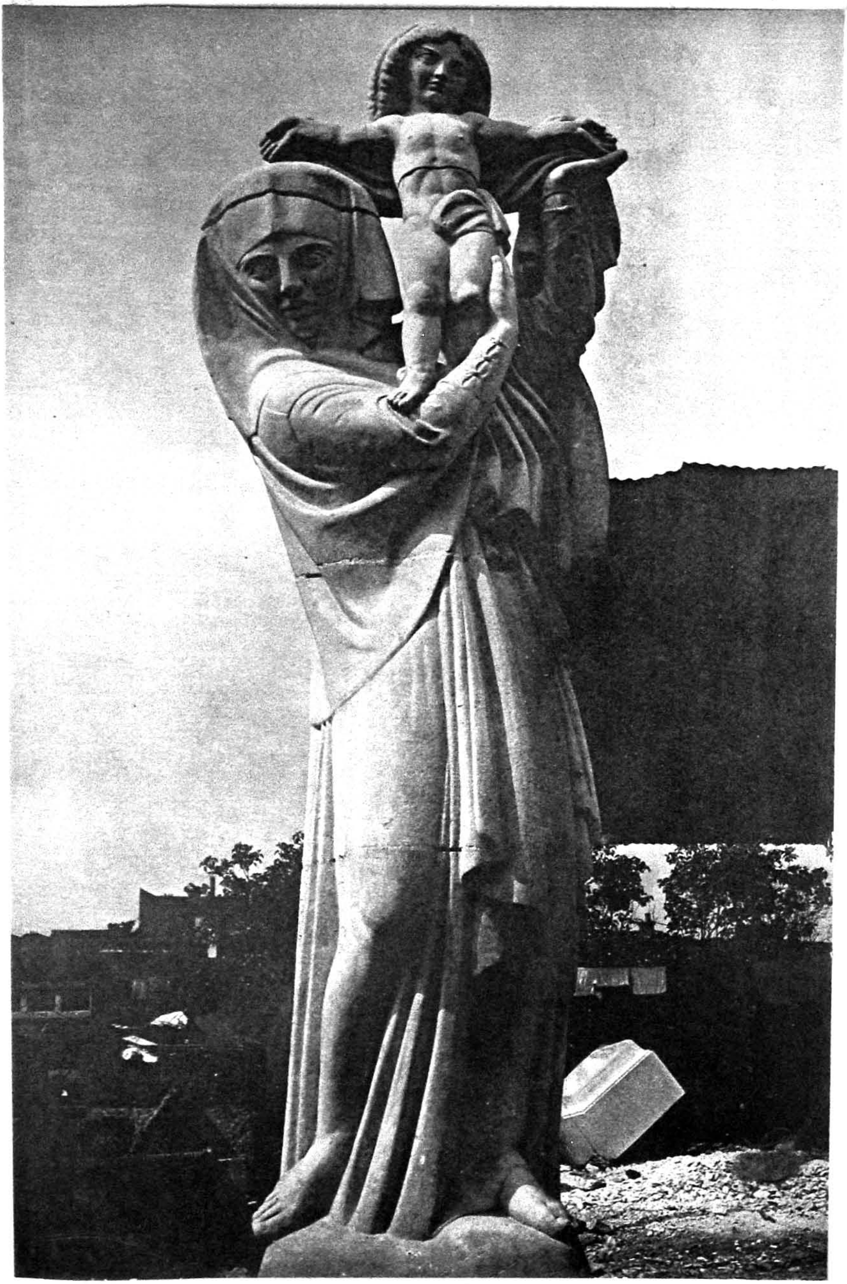

Plate XXX

MESTROVIC

The Archers of Domorgoi

Ivan Mestrovic will probably be regarded as one of the greatest designers of our time, and for that reason I have selected an example which powerfully demonstrates his particular genius. "The Archers of Domorgoi" is based almost entirely on the principles of radiation and repetition, aided by an amazing virility of movement. It is probably more attractive as a composition in line than as a bas relief, because, although it possesses much of the charm of the Assyrian reliefs it is somewhat slighter in projection and is lacking in the rich quality of form so characteristic of the latter. Nevertheless, as a masterpiece of design alone it is fully deserving of most careful study, as also is the superb drawing of the contours of the individual figures. With regard to the "anatomy" of the composition it will be noted that the main structural lines are very few indeed. Starting from the right of the base line the eye travels upward in a vertical direction until it reaches the group of knees. It is then diverted violently to the left of the panel where it is again checked and travels upward in a reverse direction to the upper boundary of the design. This might be termed the backbone of the composition. Very important, also, is the position and direction of the right thigh of the foremost figure, which acts as a buttress in supporting the backward inclination of the group. The forward thrust of the arms and arrows, which gives enormous vigour to the design, is well counteracted by the backward bend of the group of bows which keeps the action within the boundary of the composition. Whilst the faint lines on the background to the left of the design which converge approximately on the arrow points give additional emphasis to the spirited movement in the relief, likewise the radiation of the arrows and bowstrings from a common point all play their part in making this relief one of the most successful designs of modern art. The repetition of the same unit is an old formula in design, but rarely has it been employed so successfully as in this particular example.

Plate XXXI

DHANAKOTI MUDALIAR

F. METZNER

Sculpture at the Rheingold Restaurant, Berlin

This example is probably one of the most successful achievements produced by the modern school of sculpture. It is a definite feature of an architectural scheme, and as such its lines and forms are strikingly architectural in character. In itself a buttress, it embodies all the stability and rigidity of design demanded of such a subject. Anything in the nature of realism would be utterly out of place and incongruous for such a purpose. The conventional treatment of the colossal face derives enormous scale, impressiveness and strength from the miniature carvings below, thereby emphasising its capacity as a structural feature to support the enormous weight required of it. This is a noble and dignified work, and although considerable licence has been taken with the actual forms of nature because the æsthetic requirements of the subject demanded it, yet neither in line nor form of this truly fine conception has the sculptor used this legitimate prerogative of the creative artist as an excuse to introduce the crude and ugly shapes which are too often the only characteristics of much present-day sculpture.

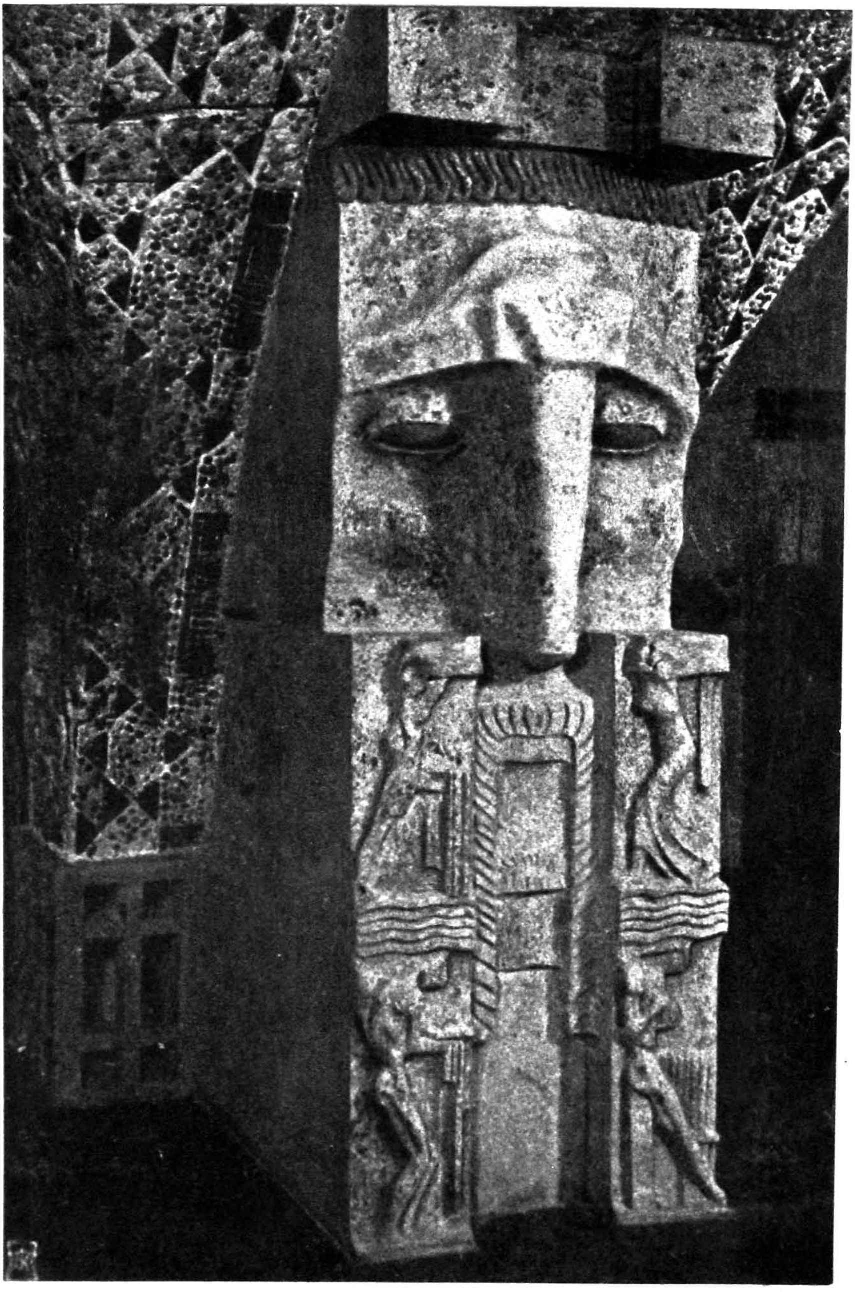

Plate XXXII

DHANAKOTI MUDALIAR

HENRY POOLE, R.A.

"The Little Apple"

This is one of the most successful examples of carved sculpture produced in England. The material is Portland stone, and the compact arrangement of the design fulfils all the requirements of a piece of sculpture executed in a comparatively soft limestone. Such a feminine subject is most difficult to interpret in a big monumental manner and at the same time retain the charm and refinement demanded by the nature of the theme.

It is noticeable that a very simple but effective silhouette has been adopted. The conventional treatment of the drapery, with its almost geometric radiation of folds, supplies a feeling of architectural stability at the base of the group, where strength was needed. From the point of view of composition, the direction of the drapery is balanced or counteracted by the backward thrust of the entire group from the waist upward.

The sculpturesque effect of this work is greatly emphasised by its exquisite refinement of form and drawing. The only feature I dare to criticise is the depth of the base, which I think should have been a little greater. As the group is in stone, there is a slight suggestion of weakness at the point where the base projects forward from the actual group itself.

PLATE XXXIII

DHANAKOTI MUDALIAR
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